Darwin Initiative – Final Report

*(To be completed with reference to the Reporting Guidance Notes for Project Leaders (http://darwin.defra.gov.uk/resources/reporting/) - it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

Darwin project information

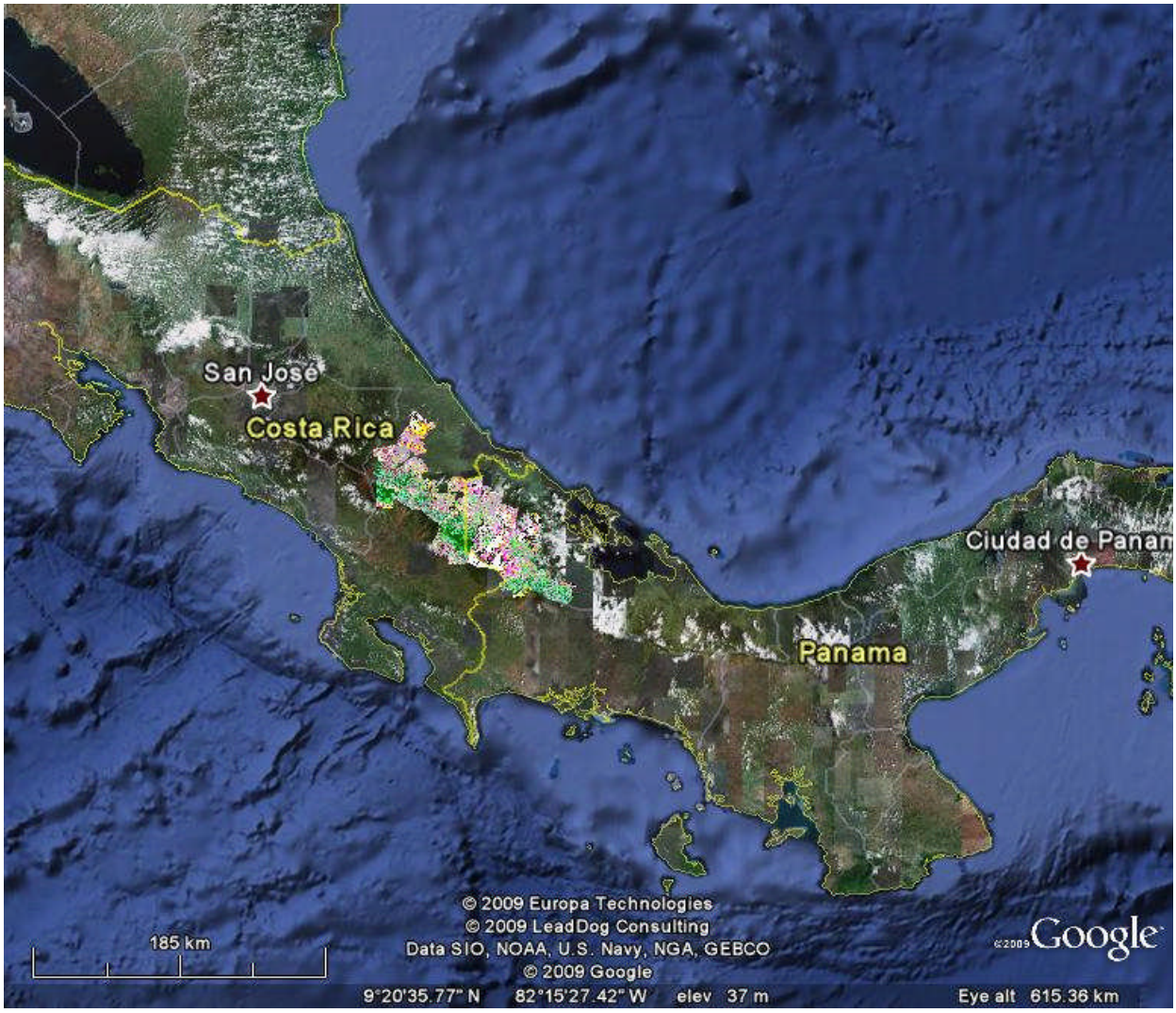
Project Reference	15/027
Project Title	Baseline tools for management in PN La Amistad (Costa Rica/Panama)
Host country(ies)	Costa Rica, Panama
UK Contract Holder Institution	The Natural History Museum, London
UK Partner Institution(s)	
Host Country Partner Institution(s)	Instituto Nacional de Biodiversidad (INBio), Santo Domingo de Heredia
Darwin Grant Value	£225,993
Start/End dates of Project	July 1 2006 to July 31 2009
Project Leader Name	Alex Monro
Project Website	inbio.ac.cr/proyectopila-darwin
Report Author(s) and date	Alex Monro, Frank Gonzalez, Oscar Chacon, Eduardo Boza, Angel Solis, Nelson Zamora.

Acronyms

ANAM: Autoridad Nacional del Ambiente, Panamá
INBio: Instituto Nacional de Biodiversidad, Costa Rica
NHM: The Natural History Museum, London
PILA: La Amistad binational park
PMA: Escuela de Biología, Universidad de Panamá.
SINAC: Sistema de Áreas Protegidas de Costa Rica
TNC: The Nature Conservancy
UCR: Escuela de Biología, Universidad de Costa Rica
UNACHI: Universidad Autónoma de Chiriquí

1 Project Background

PILA represents the second largest state-controlled park and forms the core of the third largest biosphere reserve in Central America. PILA represents a major biodiversity resource. This is recognized in its strategic position in the Mesoamerican Biological Corridor and designation as a UNESCO World Heritage Site. In 2004 a binational strategy was produced with the aim of producing a unified management plan for PILA. Key aspects of this plan were the production of a unified vegetation map and biodiversity baseline data. This project undertook to generate these tools under a mandate from the Binational Commission responsible for executing this strategy.



Map of Costa Rica and Panama. PILA is the 'mapped' area straddling the border between both countries.

2 Project support to the Convention on Biological Diversity (CBD)

CBD National Focal Points

Costa Rica

Lesbia Sevilla Estrada, CBD Primary NFP, SBSTTA NFP. We had several meetings with Lesbia during the course of the project. She was also involved in the preparation of the application for post project funding.

Nelson Zamora, GSPC NFP. As main host collaborator Nelson has been closely involved in this projects design, execution and in the preparation of the post project application and preparation of this report.

Panama

Darío Luque, CBD Primary NFP, CHM NFP, Access and Benefit Sharing NFP, GSPC NFP. We have had regular contact and communication with Darío throughout the project and he was appointed as the project's focal point within ANAM, our main partner institution within Panama. Darío was key in providing the political and logistical support needed by the project within Panama.

CBD National Biodiversity Action Plans

Costa Rica

Thirteen strategic points were identified research and investigation; information exchange; national capacity for the management of biodiversity. The project contributed to six of these: 1) strengthening the national and regional territorial planning process, 2) using biodiversity as a key element for development strengthening research actions required to generate knowledge for the conservation and sustainable use of biodiversity, 3) consolidate national efforts on in situ conservation, 4) raise citizen awareness of biodiversity, 5) strengthen SINAC's capacity to control, supervise and follow-up research and, 6) create a base line for the management, research and monitoring of biodiversity of a binational are of global importance.

Panama
The Atlantic region is recognised as having the greatest diversity of ecosystems and species in Panama by the BAP. The BAP includes seven key components that include, scientific research and technology; education and awareness; and technical and financial cooperation that are addressed by this project. In Panama's report to the CBD 'Measures taken to achieve the 2010 Target', this project is cited as one of those measures.

Support to host country institutions to build their capacity to the meet CBD commitments
INBio: increased the capacity of the institution's biodiversity reference collections and database for vascular plants and coprofagous scarabs thereby increasing their capacity to identify species and map their distributions within Costa Rica. Generated the capacity to undertake multidisciplinary and substantial (2-3 week) fieldtrips to remote locations, increasing the institution's capacity to monitor and generate baseline biodiversity data.

PMA: increased the capacity of the institution's biodiversity reference collections and database for vascular plants, coprofagous scarabs, amphibians and reptiles, thereby increasing their capacity to identify species and map their distributions within Costa Rica. Trained several students and research assistants in the field.

UCR: increased the capacity of the institution's biodiversity reference collections and database for amphibians and reptiles. Provided access to a hitherto unexplored part of Costa Rica and Panama and funded visit to the University of Panama collections.

UNACHI: increased the capacity of the institution's biodiversity reference collections for bryophytes and trained one of their students in the field.

ANAM: provided baseline data and a unified map to a strategically important and big national park. Provided training and experience to technical staff in biodiversity data collection, analysing satellite data and in undertaking substantial fieldtrips to remote areas and so monitor more effectively. Supported the institution in meeting Panama's 2010 Biodiversity target.

SINAC: provided baseline data and a unified map to a strategically important and big national park. Supported the institution in meeting Costa Rica's 2010 Biodiversity target.

Mountain Biodiversity Thematic Programme
'*Goal 2.3.1: Promote integrated transboundary cooperation, strategies for sustainable activities on mountain ranges through mutually agreed-upon arrangements by countries concerned. Cooperative arrangements should cover specific thematic issues such as landscape, soil, wetland, watershed, rangeland, mining, protected areas and wildlife management, agriculture, pastoralism, forestry, transportation, energy and tourism.'* PILA is a transboundary largely montane park (85% is above 1000 m elevation). A major aim of this project was to produce a unified (transboundary) map and baseline biodiversity data for PILA.

'Goal 2.3.2. Promote and strengthen regional and transboundary cooperation for research, adaptive management, fair and appropriate allocation of water to ecosystems, and exchange of expertise to improve the conservation and management of mountain biodiversity (e.g., Global Mountain Biodiversity Assessment (GMBA) and International Centre for Integrated Mountain Development (ICIMOD)).' See above. Transboundary cooperation for research included joint Panamanian-Costa Rican teams for the collection of botanical baseline data and the groundtruthing of the map data.

'Goal 3.1.2. Conduct mountain surveys in priority areas, for conservation and sustainable use of mountain biological diversity. These surveys should consider inventories at genetic, species and ecosystem levels.' Surveys of herpetological, botanical and coprofagous scarab biological diversity and of the vegetation of PILA were undertaken in a series of seven expeditions.

'Goal 3.1.4. Support the work of the Global Mountain Biodiversity Assessment' The results of the biodiversity surveys have been databased and are part of INBio's ATTA and Panama's Brahms database. This data is also available directly from the project web page.

'Goal 3.3.1. Enhance and improve the technical capacity at a national level to monitor mountain biological diversity, benefiting from the opportunities offered by the clearing-house mechanism of the Convention on Biological Diversity, including the development of associated databases as required at the global scale to facilitate exchange.' The unified map and biodiversity inventories generated by this project provide a baseline for monitoring. In addition the field and technical skills gained by the project team and participants means that both countries will be able to undertake the necessary fieldwork and interpretation of remote sensed data.

'Goal 3.3.3. Encourage mapping and inventory of biodiversity and of land-use changes, using analogue and digital databases (remote-sensing, geographic information system) for scientific purposes and for supporting decision-making.' Biodiversity cannot be surveyed remotely but intelligent mapping and groundtruthing can enable the development of mapping techniques that provide classes that have a relationship with biodiversity. This project has established a protocol for using and integrating biodiversity data based on direct observations in the field with remote sensed data. This has the advantage of enabling 'vegetation' maps to be generated that have some demonstrable relationship with biodiversity.

GSPC Cross-Cutting Issue

'Target 1: (i) A widely accessible working list of known plant species, as a step towards a complete world flora; In effect the target will require the compilation and synthesis of existing knowledge, focusing on names and synonyms, and geographical distribution.' This project has checked and updated the nomenclature for all 3,017 plant species recorded from PILA. This data has fed into the relevant national databases in Costa Rica and Panama and through these will feed into the global level TROPICOS and GBIF datasets.

'Target 2: (ii) A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels.' The project has undertaken a conservation status assessment using IUCN red-list conservation assessment criteria for 200 species considered keystone to PILA. These assessments will be submitted for publication in 2009 at the end of 2009 but can be viewed on the project website.

'Target 16: Networks for plant conservation activities established or strengthened at national, regional and international levels. Effective networks provide a means to develop common approaches to plant conservation problems, to share policies and priorities and to help disseminate the implementation of all such policies at different levels. They can also help to strengthen links between different sectors relevant to conservation, e.g. the botanical, environmental, agricultural, forest and educational sectors. Networks provide an essential link between on-the-ground conservation action and coordination, monitoring and policy development at all levels. This target is understood to include the broadening of participation in existing networks, as well as the establishment, where necessary, of new networks.' The project has seen the establishment of a network of botanists, herpetologists, entomologists, geographers, park managers and park guards for PILA who share experience in the field and contacts with several local communities surrounding the Park. This network includes members of, and is recognised the Binational Commission and national agencies responsible for PILA's management (ANAM, SINAC).

2010 Biodiversity Target Cross-Cutting Issue (relates mainly to Article 7)

'Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes. Target 1.2: Areas of particular importance to biodiversity protected.' PILA is a centre of diversity for plants and amphibia for both Costa Rica and Panama, containing approxiamtely 1/3 of the species and a significant proportion of the endemic species for each country. In addition it includes 38 km2 of regionally scarce Paramo vegetation and 1545 km2 of regionally important and scarce oak forest. The establishment of baseline data and a unified map represent important tools for the conservation of these habitats and their species. This project was cited in Panama's report to the CBD on its contribution to the 2010 Biodiversity Targets.

'Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention. Target 11.2: Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4.' As above.

GTI Cross-Cutting Issue

'Operational objective 3: Facilitate an improved and effective infrastructure/system for access to taxonomic information; with priority on ensuring countries of origin gain access to information concerning elements of their biodiversity. Target under operational objective 3: A widely accessible checklist of known species, as a step towards a global register of plants, animals, microorganisms and other organisms.' As above (GSPC). In addition, checklists of amphibia, reptiles and coprofagous scarab beetles based on existing collections and collections made for this project has been produced for PILA and this will be submitted for publication late 2009/ early 2010. These local checklists will feed into national checklists for Panama and Costa Rica.

'Operational objective 4: Within the major thematic work programmes of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components. Planned Activity 8: Forest biological diversity.

Planned Activity 13: Mountain biological diversity.' See Mountain Biodiversity Thematic Programme and above.

'Operational objective 5: Within the work on cross cutting issues of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components. Planned Activity 17: Support for ecosystem approach and CBD work on assessment including impact assessments, monitoring and indicators. Planned Activity 18: Protected areas.' See above (Mountain Biodiversity Thematic Programme, 2010 Biodiversity Targets).

3 Project Partnerships

The principle partnerships during the course of this project were between the UK lead, INBio and UCR in Costa Rica and ANAM and PMA in Panama. The most substantial of which was with INBio. Partnership details are given below. The project signed an MOU with INBio and established a formal written agreement with ANAM during 2007.

The partnership was established on demand stemming form the host countries (ANAM, INBio, SINAC, TNC) identified in 2004: PILA is a strategically important park with limited management capacity including the lack of a unified management plan.

During the course of the project TNC proposed PILA under its *Parks in Peril* initiative. This culminated in a joint mission to Costa Rica and Panama by the UNESCO World Heritage Centre and IUCN in 2008, to which co project leader Nelson Zamora made a presentation on behalf of the project. Since then the project has established links with TNC in Costa Rica and Panama and in 2008 a joint post project proposal was submitted to the DI.

Particular achievements of the project partnerships have been: 1) the establishment of an excellent and enthusiastic team from INBio, ANAM and UCR whose dedication was key to the project meeting its objectives. Notable was the support from Darío Luque, Israel Tejada, Lionel Quiroz and Roney Samaniego, from ANAM, Angel Solis, Oscar Chacón, Daniel Santamaria and Frank Gonzalez at INBio and Eduardo Boza and Federico Bolaños from UCR. The connections and contact established within this international team provide a sound basis for the future monitoring and documentation of the biodiversity of PILA. 2) Post project inception partnerships developed with UCR and INBio Entomología enabled the generation of baseline data for three groups of organisms in addition to plants, and 3) the establishment of a multidisciplinary field team capable of substantial exploratory fieldwork.

Challenges to the partnerships have been political and logistical. SINAC, the GO responsible for PILA's management in Costa Rica did not engage with the project until 2008 for local political reasons. Although this did not seriously impact the project it made the dissemination of project results and consultation with SINAC difficult. These difficulties began to be overcome once the project began to deliver data and draft maps of PILA and a change in personnel at SINAC. We were also unable to develop a relationship withe entomology department of PMA despite repeated offers to take students into the field and the depositing of duplicate collections with them. The reasons for this are unknown. Logistical difficulties resulting from the extent to which permits are required when moving specimens between partners in Costa Rica and Panama placed a lot of pressure on the partnerships between ANAM and UCR. These were unavoidable and the consequence of the Byzantine restrictions and controls over the generation and sharing of biodiversity data in form of biological collections in the region and overcome by the mutual trust between partners. The issuing of permits for the movement of herpetological collections between the two national reference collections required seven months and more than 200 emails alone.

Specific partnerships

INBio: the main overseas partner responsible for planning and managing seven substantial field trips in association with UCR, ANAM, PMA and UNACHI and three training courses run in Costa Rica and Panama. INBio was also responsible for the expenditure and accounting of project funds in Costa Rica and Panama; overseeing the identification of the botanical and entomological collections and securing permits for the import and export of all biological collections made. A. Solis, D. Santamaria, F. Gonzalez and N. Zamora travelled to the UK over the course of the project where they identified collections and participated in the analysis of the biodiversity data. They did this at the NHM and Department of Plant Sciences, Oxford University. In 2007 and 2008 joint applications for funds were submitted to the National Geographic Society and to the DI.

ANAM. Responsible for the management of PILA in Panama. ANAM appointed Dario Luque and Israel Tejada to coordinate the project activities in Panama including the issuing of permits. A meeting was held in Panama City in May 2006 and November 2007 with representatives of the University of Panama and ANAM. A follow-up meeting was held in March 2008 in San Jose, Costa Rica and in July 2009 in David,

Panama. ANAM selected field localities and co-organized three successful fieldtrips in Panama during 2008 on which participated ANAM staff (Israel Tejada, Lionel Quiroz, Aurelio Hartmann, Abelado Pity, Luis Elizondo, Hilario Sánchez).

SINAC: provided collecting permits and provided this project as evidence of ongoing research in PILA to the UNESCO World Heritage Centre Mission in February 2008. Although their involvement in the project was notably less than that of ANAM they contributed to discussions on the production and detail of the unified map and are active partners in the post project.

Binational Commission for the management of PILA: The project presented its findings to the La Amistad Binational Commission meetings in 2007, 2008 and again in 2009. Commission members include a number of project partners (Darío Luque, Lionel Quiroz, Lesbia Sevilla)

UNESCO World Heritage Centre / IUCN: PILA is a UNESCO designated World Heritage Site and UNESCO held a meeting on the 18th of February to discuss threats to PILA. Nelson Zamora presented the project activities and outputs as well as some of the preliminary results to the UNESCO participants.

PMA: We collaborated extensively with the National Herbarium, the Herabrium is fully databased and we received a download of data that covers PILA, we were also able to use the herbarium to identify unidentified material and to dry, prepare and pack collections from the Panamanian fieldtrips. PMA staff also organised the shipping of material from Panama to Costa Rica after each fieldtrip and students or staff accompanied us on all of the Panamanian collecting trips. The National Herbarium was repository for the first set of duplicate plant specimens collected in Panama.

BBC: NHM is the focus of a six-part documentary by the BBC to be screened in 2010. The project collaborated with this documentary and this resulted in three weeks of filming in the field in Panama as well as in the Museum. This should result in the broadcast of a ca 10 minute sequence.

TNC: the project developed a dialogue with TNC through presentations to the Binational Commission for the management of PILA. These developed into a partnership for the post project proposal that will secure the project legacy. In July 2009 we met with Jorge Cole from the Central America office and he introduced us to the Bribris indigenous community with whom we hope to work as part of the post project. TNC confirmed that they will supply matching funding for the post project.

Taxonomic specialists: the identification of many of the biological collections made as part of the fieldwork required the assistance of a number of recognised taxonomic and regional experts. The collaboration and support of these experts, together with access to World class reference collections enabled the collection and subsequent analysis of high quality biodiversity data. For vascular plants these were as follows: These were as follows: J. Pruski (Missouri Botanical Garden), Asteraceae; J. F: Morales (INBio), Apocynaceae, Araliaceae, Bromeliaceae; M. H. Grayum (Missouri Botanical Garden), Araceae, Arecaceae; B. Hammel (Missouri Botanical Garden), Cyclanthaceae, Marcgraviaceae; H. H. van der Werff (Missouri Botanical Garden), Lauraceae; R. Kriebel (California Academy of Sciences), Melastomataceae; C. M. Taylor (Missouri Botanical Garden), Rubiaceae; A. Soto (INBio), Solanaceae; S. Knapp (NHM), Solanaceae; A.K. Monro (NHM), Urticaceae; R. C. Moran (New York Botanical Garden), Monilophytes; A. Rojas (Museo Nacional, Costa Rica), Monilophytes. For amphibians and reptiles: Federico Bólanos (Universidad de Costa Rica), Eduardo Boza Oviedo (Universidad de Costa Rica), David Wake (University of Berkely), Salamanders; Roberto Ibáñez (Universidad de Panamá). For coprofagous scarab beetles: Ángel Solís (INBio).

4 Project Achievements

4.1 Impact: achievement of positive impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

This project was not designed to have a direct impact on biodiversity but to improving national and institutional capacity in support of biodiversity conservation discussed under project outcomes below. It did however contribute to the host countrys CBD 2010 targets (see section 2 ‘2010 Biodiversity Targets’).

4.2 Outcomes: achievement of the project purpose and outcomes

The project purpose, to provide the basic biological data and mapping resources necessary to underpin the development of a unified management plan of La Amistad Binational Park in accordance with a strategy agreed by the national authorities of both countries in 2004, was achieved (see Annex 1).

Outcomes

Access to knowledge. Baseline biodiversity data, distribution and biodiversity value of classes. The project generated and collated the first comprehensive inventory of the diversity of vascular plants,

coprofagous beetles and herperofauna for PILA (see Annex 8). This data is linked to biological collections and hence verifiable. It is also databased and available online through the project website and INBio's ATTA database. Vascular plant and coprofagous data will also be migrated to GBIF from ATTA.

Access to images. Images of living organisms for most of the species recorded from PILA are available on the project website (http://lucina.inbio.ac.cr/m3sINBio/getGallery) and for vascular plants through the TROPICOS website hosted by the Missouri Botanical Garden. For many of these species these are the only images of living material. The value of images is particularly important with respect to public engagement and awareness. As PI I plan to upload images to the Encyclopaedia of Life web pages through the EOL images flickr group. UCR (Eduardo Boza) has uploaded 47 images of 28 species onto the Amphibia web pages and they are tagged with an acknowledgement to this project (see Annex 12).

Access to physical resources. The project generated several thousand biological collections, all of which have been geo-referenced, databased and accessioned to the relevant collections in the host countries, the US and the UK. The project also provided a number of physical resources, notably curatorial material (printer, labels, mounting pins, herbarium card etc), GPS's and digital cameras that will continue to generate valuable natural history resources.

4.3 Outputs (and activities)

The project achieved all of its outputs as laid out in the logical framework (see Annex 1). These outputs represent an expanded version of the original proposal which covered only Costa Rica and a single group of organisms (plants).

Several problems were encountered in delivering the project outputs:

1. Field costs were significantly higher than expected. In part because we had included additional team members to cater for the additional groups of organisms and surprisingly there were no economies of scale as anticipated by the original budget. Also the original field budget was based on field costs incurred as part of Flora Mesoamericana in Panama in 2006 but these were much lower than for Costa Rica. Fortunately, as a result of weakening US$ and flexibility by DEFRA we were able to offset these increased costs from reduced costs elsewhere (notably salaries).
2. Collection permits for Panama. Obtaining collection permits for the Panama fieldtrips took a very long time. We needed permits to make the initial collections and then to export material to Costa Rica for identification and then an additional permit to return them to Panama. This took months and caused delays in the identification stage of the project. In addition for the herpetological collections additional permits were required to bring material to the national collection in Panama. As a consequence with the final comparison of the new species with material in the PMA collection taking place in July 2009, eight months after their initial identification.
3. Politics were difficult at the beginning of the project. ANAM was unhappy that Panama had not been included in the original proposal (on the advice of the Mesoamerican Biological Corridor team in Panama) and so not fully consulted in the proposal's development and SINAC was unhappy at the way that INBio had developed the proposal. These were overcome by the full inclusion of Panama in the project and consulting as fully as possible during the course of the project. This was helped greatly by the UNESCO World Heritage Centre Mission which enabled SINAC to refer to this project as part of its commitments under the World Heritage scheme.

4.4 Project standard measures and publications

4.5 Technical and Scientific achievements and co-operation

Production of a biodiversity zone map integrating satellite and biodiversity data

Staff: Oscar Chacón, Alex Monro, Nick Brooks, Nelson Zamora, Frank González

Methodology: Seven SPOT 5 satellite images with a 10 x 10 m pixel size were analysed following radiometric calibration. Analysis took the form of an unsupervised NDVI classification supplemented with a partial supervised classification for distinct vegetation formations of known distribution e.g. paramo, 'savannah'. The partially supervised classification was used to locate sample points for ground-truthing at seven field sites. Field sites were chosen on the basis of a lack of scientific exploration, that they were within two days travel of the nearest road and that they were spread out across the Park. Ground-truthing took the form of observations on vegetation structure, leaf size ranges disturbance and species composition of vascular plants, coprofagous scarabs and herpetofauna. Each class of organism was sampled using different plot / transect sizes, specific locations and numbers of plots. Each plot / transect

was designed to maximise the amount of diversity sampled. The sampling protocols are available on request. A distinction was made between human and natural disturbance (storm, landslides).

Observational data on vegetation structure, leaf size range, disturbance and analyses of the biodiversity data were used to undertake a supervised classification of the satellite data. In order to try and identify the environmental variables that have the strongest influence on species composition a canonical correspondence analysis was undertaken. This was applied to elevation, slope orientation, slope position, watershed, rainfall and temperature. The results of these analyses were then used to modify and inform the supervised classification. A raster image of the supervised classification was then used to generate an error matrix to evaluate its robustness. The aim was to obtain error rates ≤ 20% for each class.

The supervised classification was then compared to the biodiversity data. This was undertaken by comparing the clustering of the sample points in the supervised classification to that based on species composition using non-metric multidimensional scaling with Bray Curtis and the stress measure as a test of congruence.

Findings and their review:

Environmental variables that best explained species composition were watershed (plants), altitude (plants, coprofagous scarabs), rainfall, temperature and SE slope orientation. The relationship between altitude and scarab species composition was used to delimit the altitudinal bands applied to the supervised analysis of the satellite data. The most surprising of these results was the strong correlation between vascular plant composition. This was tested with an ANOSIM analysis - which uses a Monte Carlo approach to examine whether the mean distance between members of a group (in this case plots within a river valley) are closer together than mean distance between a similar number of items selected at random from the entire data set. The result was highly significant ($P = 0.004$) suggesting that plots in the same river valley have strong floristic associations that they do not share with those in other valleys. As a consequence watersheds are indicated on the map and their importance as a unit of management highlighted in the accompanying scientific article.

The comparison of the clustering of plots by the supervised classification and biodiversity data using non-metric multidimensional scaling with Bray Curtis gave a stress measure of 0.22 implying that the map classes are a pretty good representation of the relative similarity of the plots in terms of their species composition. This finding was used to justify naming the map classes biodiversity zones.

The approach used, methodology, results and interpretation of the findings will be discussed fully in a paper to be submitted to a peer-reviewed journal in 2010.

4.6 Capacity building

Capacity of host county partners for further biodiversity work increased, evidence for this?

Institution building and organisational development. See section 2 ‘Support to host country institutions to build their capacity to meet CBD commitments’. For evidence see Annex 1 (Output 3, 7) & Annex 4 (Outputs 8-10, 12, 13).

Probably of greatest impact at a national level was the development of a multidisciplinary and multi institutional team that included scientists and policy makers across the two countries. By spending time together under difficult conditions in the field, relationships between the team members were strengthened and a sense of trust established. Evidence for this can be seen from ANAM and INBio staff being listed on eachothers Facebook pages. This is especially important at an institutional level in the case of INBio and ANAM where future collaborations will be essential if the map and baseline data for PILA are to be updated effectively.

In addition this project has demonstrated the exceptional biodiversity value of PILA, and presumably the remainder of the Talamanca Mountains to Costa Rica and Panama: the Park including ca 1/3 of the sampled flora and fauna of both countries. Given that much of PILA and Talamanca remains unexplored the project has exposed an area of great potential for future biodiversity exploration for both countries.

Training and human resources development. See Annex 1, Outputs 5 & 6. Annex 4. In addition to this, a team of experienced fieldworkers was established through the project. Surprisingly the field capacity of INBio and PMA was limited to short overnight or 2-3 day collecting trips. This project gave several taxonomists, curators and students the experience to undertake 2-3 week camping trips significantly increasing their collecting range. This project also provided valuable ‘on the job’ experience and training in project management and data cleaning and analysis to INBio curator Frank González; experience and

training in data cleaning to Daniel Santamaría (INBio) and Daniel Solano (INBio); experience and training in image tagging and uploading to Daniel Solano (INBio) and experience in the analysis of SPOT 5 data and in the inclusion of biodiversity analyses into supervised classifications to GIS technician Oscar Chacón (INBio).

Increasing the capacity of the UK lead institution to be an effective project partner

The NHM team member and PI learnt a lot about effective communication, long-distance person management and project management. He also developed extensive contacts across a number of disciplines (herpetology, GIS, ecological analyses) and institutions not initially included in the project (Oxford University, UCR, UNACHI). Together with other Darwin Initiative PIs past and present at the NHM this will strengthen our capacity to develop and manage future projects.

NHM has the most important vascular plant collections from Mesoamerica in the UK and maybe Europe. The project activties contributed to these collections through the accessioning of over 4,000 herbarium specimens and this will enable us to provide improved capacity for the identification of plants from Mesoamerica.

4.7 Sustainability and Legacy

Project achievements that are most likely to endure

1. Biodiversity collections / data and exploration of PILA: reference collections, the published checklists, and electronic species records are likely to endure for several decades. The collections themselves are capable of lasting and remaining taxonomically relevant for several hundred years. The published checklists will be available for several decades and should remain relevant for at least a decade, maybe longer if the decline in taxonomic capacity and resources dedicated to documenting diversity continues in the UK and the host countries (INBio remains in very difficult financial circumstances and is at its lowest scientific complement since its establishment). The electronic species records are fully geo-referenced and often linked to digital images of living material. They are currently stored in the INBio database ATTA and are also available through the project website (http://lucina.inbio.ac.cr/portalDarwin). ATTA periodically exports its georeferenced records to GBIF thereby ensuring a legacy for this data should INBio fail.
2. Unified map to PILA: This the first unified classification of PILA and it is set to be approved by the Binational Commission later this month. This resource should be updated on a regular basis so although hopefully it should not endure in its present form for more than a few years the classes used should remain current for at least a decade, pending the further exploration and monitoring of the Park.
3. Field / biodiversity exploration capacity: this is likely to remain for as long as the partner institutions continue to undertake exploratory work of a substantial duration and for as long as project staff and partners staff remain in employment. Probably the cost of such exploratory work will be the limiting factor. The NHM, INBio and PMA certainly intend to apply for funds from new sources to continue botanical exploration over the coming years.
4. Approach to interpretation of satellite and biodiversity data: an approach based on the integration of patterns in biodiversity and satellite data has the potential to endure but this will depend on how it is viewed and accepted or not by the peer-review community and how easy it is to apply at the broader scale. It maybe also is that it is seen as labour intensive and costly compared to semi-automated satellite only classifications. This is an area that NHM and INBio would like to pursue further over the coming years.

Fate of project staff and resources

Project staff:

Frank González: Frank will remain employed at INBio as project coordinator for post project EIDPO033 until 2011. It is expected that he will remain at INBio after this time.

Oscar Chacón: Oscar remains employed at INBio as GIS technician for the foreseeable future.

Heiner Acevedo: Heiner remains employed at INBio as head of the GIS department.

Daniel Santamaría: Daniel remains at INBio employed as curator and should remain there for the foreseeable future. He is the most promising young botanist I have met in Central America.

Daniel Solano: Daniel remains at INBio employed as curator and should remain there for the foreseeable future.

Alexander Rodríguez: Alexander remains at INBio part-time but has begun a botany teaching position at UCR.

Project resources:

Project website (http://www.inbio.ac.cr/pila-darwin/): INBio agreed to host the project website and is committed to maintaining it for the forseeable future.

SPOT 5 data: copies of this data are stored at ANAM, INBio and NHM. ANAM and INBio have used and plan to use the data for additional country-wide projects. INBio plans to use the data to assess and monitor land use and cover for the Caribbean coast of Limón-Talamanca in particular of wetlands and mangrove forest.

Digital cameras: these have been used extensively for the generation of images of herpetofauna and plants. Many of which are known only from preserved specimens. These cameras are likely to be out of date in the next couple of years.

GPS: these have been used extensively for georeferenced data and should continue to be used for several years.

Camping equipment: several tents, sleeping mats, tents, plastic sheets, etc. were purchased for fieldwork and these should continue to be used for several years.

Are partners likely to keep in touch?

Yes the project partners should remain in touch. More likely through a series of bilateral collaborations. The NHM-ANAM-INBIO-SINAC-UCR collaboration will continue as part of a new collaboration with TNC and several local communities that forms the post project. In addition NHM-INBio-Oxford University have plans to develop collaborations on the use of biodiversity data in vegetation classification; INBio-NHM-ANAM-UCR have plans to continue the exploration of PILA and adjacent areas of the Talamanca Mountains. Individual relationships e.g. between the INBio and ANAM GIS teams are likely to remain in contact, as are curatorial staff at INBio and PMA. Collaborations between taxonomists for the different groups of organisms will continue with the post project but are unlikely to continue past then.

5 Lessons learned, dissemination and communication

Key lessons to be drawn from the experience of this project

1. Biodiversity data can be used to inform the supervised classification of satellite data.
2. It is possible to generate basic baseline biodiversity data within a practical time period provided the taxonomic capacity, enthusiasm and funds exist.
3. Watersheds have a significant impact on plant assemblages in PILA. This was a result of the analyses of the biodiversity data that was corroborated in the field. This finding, once verified and published will be of significance as there is synergy with the way that watersheds are increasingly seen as the units of management landscapes in the region, particularly in mountainous areas such as PILA. This is related to the fact that the role of natural vegetation in the management of water as a resource for agriculture, energy production or domestic consumption is increasingly appreciated.
4. The sampling of biodiversity data in Costa Rica and Panama is still incomplete. Most collecting has been undertaken in areas easy to access and their remain extensive areas of PILA that remain unexplored. We spent ca 14 weeks camping in PILA across seven localities and still feel that we have only a superficial understanding of the Park's biodiversity.

How information relating to project achievements has been disseminated and the target audience

Oral presentations to Binational Commission and GO partners: see Annex 14a.

Oral presentations to the scientific community: see Annex 4, 14 b

Project Bulletin for project partners and associates: see Annex 4, 16a; Annex 10

Media: see Annex 4 outputs 18b-19b, 'Other Measures'. Aimed at the international and national public.

Web: Project website aimed at project partners and the international and national public; images on Amphibiaweb (Annex 12).

How information relating to project achievements has been applied. Map likely to be adopted by the Binational Commission (Annex 1, Output 1), checklists deposited with ANAM & SINAC (Annex 1, Output

3) and used in the monitoring of biodiversity of PILA, biological collections accessioned and deposited in partner national collections (Annex 4, output 13b)

Will dissemination continue or develop after project completion? Dissemination will continue through scientific publications, the project website, the post project and continued media coverage. The publication of the methodology, checklists and new species will take place in 2010-2011. The post project will ensure the dissemination of project outputs and results to the local communities living around the park. The publication of the 15 new species of amphibian from PILA should generate strong media interest and the screening of a BBC documentary which features fieldwork from the project should generate media interest in the UK.

5.1 Darwin identity

Publicising the Darwin Initiative: the Darwin Initiative was publicised through the use of the logo and or title on collection labels, bulletins,on the published map, acknowledgements in scientific publications, scientific presentations, in online image tags, the project website and the print, radio and television media (see Annex 4).

Darwin Initiative recognised as a distinct project: the project was known in both Panama and Costa Rica amongst the partners and the Binational Commission as the project 'Iniciativa Darwin' and this is reflected in the project web page address.

Understanding of Darwin Initiative within in the host countries. Project partners were aware that the Darwin Initiative is part of the UK Governments contribution to the CBD that depended from the GO responsible for the environment.

6 Monitoring and evaluation

Major changes in the project design: the expansion of the area to be mapped and for which baseline biodiversity data was to be compiled and generated to include Panama was agreed in year 1 of the project. The groups of organisms to be included in the project was expanded to include coprofagous scarabs as well as herpetofauna. This was agreed in year 1. (see Annex 1)

Ativities in support for the logframe based monitoring and evaluation: baseline biodiversity information was compiled from databases at INBio, PMA, the Museo Nacional de Costa Rica and Missouri Botanical Garden at the outset of the project. Baseline vegetation mapping by INBio, ANAM, Holdridge and the Central American Commission on the Environment and Development (CCAD) was compiled. The M&E criteria present in the logframe formed the basis of the 2006/07 and 2007/08 annual reports.

Was the M&E system practical and helpful. The M&E was a useful way to communicate and highlight progress, or lack of it to project partners. However project partners are not used to such a rigid approach to project management or adherence to a timetable and they cannot be expected to adopt an Anglo-Saxon approach to project management in their own country. This generated a certain amount of stress for the UK and INBio partners.

Internal or external evaluation of the work. No internal or external evaluation of the project was undertaken outside of the annual report evaluations undertaken by ECTF. However much of the project outputs will be subject to peer-review as part of the publication process. This has already been the case for the publication the publication of the four articles to date.

6.1 Actions taken in response to annual report reviews

Yes. Delays in the publication of the network newsletter or 'Boletín' was highlighted by the first annual review and this was subsequently addressed. Annual reports and their reviews were circulated to ANAM, INBio, PMA and UCR.

7 Finance and administration

7.1 Project expenditure

Category	Allocation	Total	Difference
Overheads			
Office			
Travel			
Printing			
Conferences			

Capital	
Training and Workshops	
Equipment	
Audit	
Bank Charges	
Images	
Website	
Salaries	
Total	

[1] Office costs were higher than expected as shipping costs increased dramatically during the course of the project. In addition we had underestimated the volume of material that we would need to ship. We shipped over 30 boxes of plant specimens to PMA, Missouri Botanical Garden and NHM. These costs were incurred in the final year of the project and were unavoidable as we needed to distribute material in order to obtain identifications and comply with the collecting permit and inter-partner agreements.
[2] These costs are significantly higher than in the original proposal but were agreed with the DI in 2007 and 2008.
[3] These costs were lower than expected, in part because of the weakness of the dollar during 2007-2008 and also because accommodation in David, Panama where many of the presentations occurred were less than predicted.
[4] This was higher than expected as a number of unplanned items of equipment were purchased: a dot-matrix printer for labels (purchased because the INBio plasticised labels cost 50¢ each and given the volume of material collected wold have cost ca $7,000 in labels); three additional digital cameras for the herpetologists, entomologists and second botanical field team. The entomologists and herpetologists were not planned for in the original proposal. An additional laptop was also purchased for NHM. This was agreed with DI.
[5] These costs were not anticipated in the original proposal. Each transfer cost INBio $50 to receive.
[6] The satellite images cost more to purchase than anticipated. This is in part because the original cost was quoted in euros and the value of the pound weakened. Also we needed to pay for a satellite to be programmed as no existing images with <10% cloud cover were present in the existing image library. DI was informed of the increased cost.

7.2 Additional funds or in-kind contributions secured

ANAM

Use of vehicles for Panama field-trips: four vehicles with drivers were made available for each of the three fieldtrips in Panama (Value, ca £4,500).

Logistical support: field assistants, porters, mules and helicopter support were organised for each of the Panama field trips. In addition the Chiriquí office transported camping equipment and some of the collections between the field sites and PMA.

Contribution of staff time: Darío Luque and Israel Tejada spent considerable amounts of time helping to process permits.

INBio

Contribution of INBio entomology staff-time: Angel Solís, Billen Gamboa, Carlos Víquez and Marcos Moraga spent several weeks in the field and Angel spent seven weeks identifying material from the fieldtrips and preparing reports on this.

UCR

Contribution of UCR staff time: Ferederico Bolaños coordinated the herpetological input into the project and supported identiications, Eduardo Boza and Gerardo Chávez spent several weeks in the field and spent several weeks identifying and preparing material.

British Airways

Contribution of six club-class return flights, four between Houston and London, two between New York and London as part of their environmental programme. The face value of the tickets was £16,000 but saved the project only £2,000 as we would have flown economy.

Alex Monro

I provided a total of six weeks accommodation in London free of charge for visits by project staff and partners to the NHM on project work (Angel Solis, Frank González and Daniel Santamaría).

7.3 Value of DI funding

DI funding enabled:

1. production of a unified map of PILA: neither host country institution responsible for mapping PILA (ANAM, INBio) had access to adequate digital images for the area or the remit to map areas outside of their territory. DI funding enabled the images to be bought and provided the institutional agreements within which to produce a unified map.
2. assemble and generate the information necessary to prioritise the different biodiversity or life zones within PILA
3. documentation of biodiversity within remote parts of PILA, which accounts for ca 80% of the Park. The institutions responsible for documenting and assessing species level diversity in the host countries lacked both the funds and the field capacity to undertake fieldwork in these areas. Host countries lacked the capacity to explore areas more than a day's walk from the nearest road. This is a very basic requirement for assessing and monitoring species diversity but looking at the collections records collated during the course of the project almost all collections from remote parts of the park were made by collections teams lead from overseas: Missouri Botanical Garden or NHM, indicating that this capacity does not exist within the country's taxonomic institutions. This was confirmed when planning the first two fieldtrips.
4. enabled the NHM to continue to develop and strengthen its expertise and collections from Mesoamerica by providing access and collections to hitherto largely unexplored localities. This will support the full range of collections-based research undertaken at the NHM.

Annex 1 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements April 2007 - July 2009
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources		Unified Life-zone map and baseline biodiversity data for target groups to PILA produced and disseminated. Life zones prioritised and keystone species identified and their conservation status assessed. This underpinning the development of a unified management plan for the conservation and sustainable use of the Park's biodiversity; and the monitoring and assessment of the biodiversity.
Purpose To provide the basic biological data and mapping resources necessary to underpin the development of a unified management plan of La Amistad Binational Park in accordance with a strategy agreed by the national authorities of both countries in 2004.	Unified Life-zone map of PILA will form the basis of conservation plan.	Unified Life-zone map produced and published (Annex 7). Map produced in consultation with the Binational Commission responsible for the establishment of a unified management plan for PILA. The establishment of a unified management plan for PILA remains a priority for the Commission and its production was a recommendation of the 2008 UNESCO / IUCN Mission. Informally accepted but the map needs to be formally presented at the 2009 meeting which has been delayed twice and is planned to take place in October.
	PILA management plan includes a prioritised strategy for life-zones.	Discussions with ANAM and SINAC and presentations and feedback with the Binational Commission as well as Costa Rica and Panama's BAPs strongly indicate that a unified management plan will prioritise those life-zones that are most regionally scarce and vulnerable to human impact. A unified management plan has still not been produced by the Commission and there does no specific timetable has been agreed by the parties.
	New knowledge on life-zone and species diversity for PILA.	Have generated and integrated existing biodiversity knowledge for four key groups of organisms: vascular plants, coprofagous scarab beetles, amphibians and reptiles (Annex 8). Discovered 15 new species of amphibian, three new species of reptile, two new species of coprofagous scarab and ca 15 new species of vascular plants.
	New knowledge on conservation status of key stone species.	The conservation status of 200 species of keystone plant species assessed according to IUCN criteria has been completed and will be submitted for publication in 2009 (Annex 9).
Output 1. Unified Life-zone map of PILA, produced.	Map in use by park authorities; compatible with that for Panama side, all life-zones ground-truthed	1,500 copies of the map printed and distributed to the Binational Commission, ANAM, SINAC, UCR, PMA, UNACHI. The map will be distributed to local communities and indigenous territories bordering the park as part of the post project.

		A unified transnational map produced. Compatibility is therefore no longer an issue. All life-zones were ground-truthed and biodiversity sampled within each one. Details of locations sampled, compatibility with previous classifcations of the area, prioritisation etc will be published in a scientific paper to be submitted for publication beginning 2010.
Activity 1.1 Production and ground-truthing of life-zone map		Map with 12 biodiversity zones produced, ground-truthed and modified following analyses of the biodiversity data. Map published. Over 140 points were ground-truthed across seven sample areas and GIS based classifications of the area additionally 'truthed' using non metric multidimensional scaling in collaboration with the Department of Plant Sciences at Oxford University.
Output 2. Life-zones prioritised.	Priorities inform park conservation strategy Deposited with INBio, SINAC and ANAM	Rather than express clear priorities we decided to provide the criteria for ranking and allow user to prioritise according to their own criteria. Criteria provided for which quantitative data was provided was: life zone distribution by country, Caribbean and Pacific flanks, watershed, surface area, % of the vascular plant flora, % of the coprofagous scarab fauna, % of the herpetofauna. See output 1.
Activity 2.1. Identification of regionally important and threatened life-zones		We will publish a paper, to be submitted in 2010 that will publish our assessment of priorities in the context of the regional distribution of life-zones and identified risks. Key lifezones identified and presented to ANAM and SINAC in presentations of the projects results are the Parámo and Savana zones.
Output 3. Database and species list for keystone species produced.	Deposited with INBio, SINAC, ANAM and the University of Panama	In order to identify keystone plant species an attempt was made to inventory all of the plant diversity for PILA and integrate this data to that already present in partner and non-partner institutions was made. This was completed and duplicate collections deposited at INBio, CR, PMA, Missouri Botanical Garden and NHM. Reprints of the checklist of the flora will be sent to INBio, SINAC and ANAM and a database of the records accessible through the project website (http://www.inbio.ac.cr/pila-darwin/pdf/estado-conserv-plantas.pdf).
Activity 3.1. (not in original logframe). Generation of species diversity data for unexplored areas of PILA		Generated species diversity baseline data for four groups of organisms: vascular plants (7692 collections), coprofagous scarab beetles (17,369 collections), amphibia and reptiles (ca 380 collections). All material identified, over 80% of it to species level.
Activity 3.2. (not in original logframe). Compilation of existing data from partner and non-partner institutions		Compiled records from TROPICOS, PMA , UCR and ATTA databases. Records georeferenced. Total of 17,085 vascular plant records; 17,369 coprofagous scarab records and 519 amphibian and reptile records. All records available through the project website (http://lucina.inbio.ac.cr/portalDarwin). Records also to be published as checklists in the coming year. Copies of these publications will be sent to the Secretary of the Binational Commission and also to ANAM and SINAC.

Output 4. List of keystone species produced. Keystone species conservation status assessed.	Included in database	List of keystone species produced (Annex 9). Keystone status not included in the database for logistical reasons but provided on the project website, to be submitted for publication together with the conservation assessments and also indicated in the checklist to be submitted for publication in 2009.
Activity 4.1. Identification of keystone species		Completed. 200 species identified.
Activity 4.2. Assess conservation status of key stone species		Completed. 200 species conservation status assessed according to current IUCN criteria (criteria version 3.1; application methodology version 7).
Output 5. Staff at ANAM & SINAC trained in use and updating of life-zone map.	12 staff trained in the delimitation, use and updating/ modification of life zones.	15 staff trained but not only from ANAM & SINAC. Staff from PMA, UCR, UNACHI, the Ministry for Public Security (Costa Rica) were also trained. List of participants in Annex 11.
Activity 5.1. Develop a network of ANAM/ SINAC staff to maintain and update life-zone map as part of the PILA management plan		Staff from several Departments across SINAC and ANAM, not just GIS were trained as well as staff from NGOs associated with research or conservation of PILA. The reason for are: a) there is a flow of individuals between the GO and NGO conservation bodies in both countries and turnover can be high, especially in the NGO sector; b) realistically the monitoring of PILA will be undertaken by a mixture of different institutions under the auspices of SINAC and ANAM and so training of individuals from these instiutions was included. The courses were undertaken in November 2007 and July 2009. A list of attendees and course content included as an appendix.
Output 6. Park guards, local community representatives, staff at ANAM and SINAC trained in use of life-zone map.	16 staff trained in the ground-truthing of life-zones.	17 staff trained but not only from ANAM & SINAC. Training took place over the course of the seven field trips. Staff from ANAM and SINAC (8), PMA (4), UCR (2), Red Quercus (2)and UNACHI (1). List of participants in Annex 11.
Activity 6.1. Workshops/ training		Training took place in March 2007, July 2007, October 2007, February 2008, March 2008, July 2008 and October 2008 in the field and involved participation in ground-truthing and interpretation of the preliminary maps.
Output 7. Mechanism for updating and maintaining life-zone map developed.	A binational network in place undertaking coordinated and joint monitoring activities	Network of trained and or aware individuals amongst the key GO and NGO agencies responsible for the management of PILA is in place that is able to update and maintain the map is in place. A mechanism for its regular update has yet to be agreed by the Binational Commission. In part this is because they have not yet met in 2009 (although members have been briefed during this time) but more importantly because the production of a unified management plan that would establish such a mechanism has not yet begun. Pressure from UNESCO World Heritage Centre and Nature Conservancy through the 'Parks in Peril' initiative for such a plan, combined with the election of a new and relatively dynamic government in Panama would indicate that work on producing a unified plan may begin shortly.
Activity 7.1. Pursue project exit strategy		The aim of this project is to produce tools and provide data that will support the production and execution of a unified management plan for PILA with a particular

		emphasis on assessing and monitoring biodiversity. PILA is unusual as a park in that the property is under the management of a Binational Commission established by a Treaty ratified in the laws of both countries. The exit strategy is dependant on the production of a unified management plan on instruction by the Binational Commission which in turn is under the mandate of ANAM and SINAC. Activities 5.1 & 6.1, regular presentations to Binational Commission members on project progress, the Commissions support of the project and the infrastructure generated by the project make it very likely that the projects outputs will provide important tools and baseline data for the development of such a plan. For example, we have identified zones unique to Costa Rica (Sabana) and areas much more common in one country's sector than another (Bosque mixto basal, Bosque mixto intermedio, transicion a nuboso, Bosque de robledales nuboso bajo). The technical capacity and staff to update, maintain and modify the map and baseline biodiversity data continues to exist at INBio as project staff will remain staff members there. INBio will also maintain the project website. During the course of the project we formed a consortium of partners with other groups within INBio, Nature Conservancy and a number of communities living around the PILA and submitted a Post Project application. This was successful and the Post Project will enable the legacy to be developed and strengthened by finding an additional use for the tools, data and capacity generated and using this to impact directly on the sustainable use of PILA by the local communities surrounding the Park. In addition the collaboration between INBio and NHM is likely to continue, in particular into the technical side of the map's production and the use and analysis of geo-referenced point data / observations.
Output 8. Biological collections of keystone plant species produced.	Collections deposited at INBio, University of Panama, and NHM	Completed and expanded to include all vascular plant, coprofagous, amphibian and reptile species. See output 3 and activity 3.1.
Output 9. Local perception of life-zones and their importance.	Perceptions incorporated into life-zone priorities.	Interactions in the field, project web site, press coverage and distribution of the map have or will all raise awareness of PILA. Incorporating the perceptions of local communities was not logically possible because of the criteria used to prioritise and because we decided to provide the criteria for ranking and allow user to prioritise according to their own criteria (see output 2). Interactions in the field were probably the most effective means of raising the Park's profile with local communities, project website and press coverage the least. Most of the local communities are very poor, geographically isolated with little or no access to electricity and the internet or regular newspapers. One to one interactions were therefore far more effective.
Activity 9.1. Interactions in the field (not in original logframe).		Generated as part of the planning and execution of fieldtrips, interactions in the field probably had the greatest impact. The organisation of the fieldtrips required extensive negotiation with local communities over routes and permissions to

	cross land. We also hired ca 8 porters and field assistants for each of the seven trips from these local communities. This meant that we spent a lot of time with members of the local communities who were able to observe what we worked and discuss the project aims. Also the presence of a team of ca 20 people camping in remote parts of the Park for two weeks and the associated cost gave some indication of the importance that those outside of the immediate area gave to the Park. The presence of a BBC film crew on the last trip also raised the Park's profile with ANAM and within Panama.
Activity 9.2. Dissemination of maps (not in original logframe).	Maps will be widely disseminated to local communities through ANAM and SINAC offices as well as through the post project. This will not only raise awareness of PILA but also enable communities to place the area of the Park closest to them in the context of the whole Park.
Activity 9.3. Press Coverage (not in original logframe).	The project and in particular the discovery of new salamander species in 2007 generated significant international and national press coverage. This raised the profile of PILA at national and international levels but less so at the local level. Probably because the press coverage was predominantly print-based whereas local communities rely more on radio.
Activity 9.4. Project website (not in original logframe).	This will form a good platform for promoting PILA at national and international level but access to the internet in local communities living close to the park is almost non-existent.

Annex 2 Project's final logframe, including criteria and indicators

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve □ı the conservation of biological diversity, □□ the sustainable use of its components, and □□ the fair and equitable sharing of benefits arising out of the utilisation of genetic resources			
	Life-zone map of the Costa Rican component of PILA will form the basis of conservation plan.	Life-zone map produced and forms the basis for the Park's management plan.	Sustainable management of PILA will require the prioritisation of activities.

	Costa Rican PILA management plan includes a prioritised strategy for life-zones.	PILA life-zones prioritised and characterized in PILA management plan.	Prioritisation will be based on sound scientific data.
	New knowledge on life-zone and species diversity for PILA.	Species and life-zone list for trees of PILA deposited with SINAC and ANAM, published locally.	Monitoring and assessment of La Amistad life-zones requires a base line map.
	New knowledge on conservation status of key stone species.	Conservation status of keystone species evaluated, assessment used in characterisation of life-zones.	Monitoring and assessment of biodiversity will remain a key component of Costa Rica's BAP.
Outputs Life-zone map of Costa Rican component of PILA, produced.	Map in use by park authorities; compatible with that for Panama side, all life-zones ground-truthed	Map published and cited in conservation plan; project reports	INBio and NHM continue to maintain GIS/ remote sensing facilities.
Life-zones prioritised.	Priorities inform park conservation strategy Deposited with INBio, SINAC and ANAM.	Included in SINAC and project reports. Cited in SINAC, INBio, project reports.	Baseline life-zone map needs to be ground truthed.
Database and species list for keystone species produced.	Deposited with INBio, SINAC, ANAM and the University of Panama.	Cited in SINAC, INBio and ANAM project reports.	Local taxonomic capacity continues to support identification of keystone and indicator species.
List of indicator species produced. Keystone species conservation status assessed.	Included in database.	Deposited with INBio, SINAC and ANAM.	SINAC and ANAM remain responsible for management of PILA.

Staff at SINAC trained in use and updating of life-zone map.	12 staff trained in the delimitation, use and updating/ modification of life zones.	Staff listed in project reports.	SINAC and ANAM remain responsible for management of PILA. Staff gain appropriate knowledge from the training.
Park guards, local community representatives, staff at ANAM and SINAC trained in use of life-zone map.	16 staff trained in the ground-truthing of life-zones.	Staff listed in project reports.	Staff gain appropriate knowledge from the training.
Mechanism for updating and maintaining life-zone map developed.	A binational network in place undertaking coordinated and joint monitoring activities	PILA management plan, SINAC, ANAM, project reports	Mechanism is used and maintained by project partners.
Biological collections of keystone plant species produced.	Collections deposited at INBio, University of Panama, and NHM.	Acknowledged by partner institutions.	Project partners maintain collections.
Local perception of life-zones and their importance	Perceptions incorporated into life-zone priorities.	Acknowledged in reports and map.	Local communities have good knowledge of the buffer zone.
Activities Workshops/ training	**Activity Milestones** **Yr 1**: Project planning workshop, sign project MOUs (1 wk, July.06).		**Assumptions** Project partners continue to agree on role and function of life-zone map.
Production and ground-truthing of life-zone map.	**Yr 1**: planning workshop to agree methodologies for the transformation and mapping of remote censused data and protocol for ground-truthing (verifying) life-zone classes identified. (July 2006). **Yr 2**: Life zone network workshop (3 days, Aug. 2007), production of a baseline map. **Yr 3**: Life zone network workshop (3 days, Mar. 2009), training course for ANAM and		Zonation of the park remains a prerequisite for an effective management plan. NHM and INBio specialist GIS / vegetation mapping staff agree on data transformation methodologies.

	SINAC staff in the use and updating of the life-zone map (Apr. 2009)	
Develop a network of ANAM/ SINAC staff to maintain and update life-zone map as part of the PILA management plan	**Yr 2**: field course in ground-truthing and life-zone verification (Dec. 2007), field course in ground-truthing and life-zone verification (Apr. 2008). **Yr 3**: life zone map use and interpretation training course (Apr. 2009).	ANAM and SINAC release staff for training.
Identification of regionally important and threatened life-zones.	**Yr 2-3**: Assess conservation status of life-zones at global, regional and national level. Prioritise life-zones according to these criteria, submit this to SINAC and ANAM.	Regionally agreed life-zones for Central America (based on the Holdridge system) remain current.
Identification of keystone species.	**Yr 1-3**: Identification of collections with partner institutions and *Flora Mesoamericana* network of specialists (Apr. 2008- Dec 2008)	INBio/ University of Panama and NHM remain taxonomic centres of excellence.
Assess conservation status of key stone species.	**Yr 2-3**: Assess according to revised IUCN Red Data list guidelines and local knowledge of local specialists at INBio, PMA and NHM.	Revised IUCN guidelines remain current.
Pursue project exit strategy	**Yr 1-3**: Develop a consortium of partners and local community representatives capable of updating life-zone map on ground. Confirm a commitment to periodic updating from SINAC and ANAM. Agree a timetable and strategy for the development of the binational management plan.	

Annex 3 Project contribution to Articles under the CBD

Project Contribution to Articles under the Convention on Biological Diversity

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use		Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	25	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	45	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation		Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity		Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	15	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness		Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.

Article No./Title	Project %	Article Description
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information		Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Other Contribution	15	Smaller contributions (eg of 5%) or less should be summed and included here. Article 13 Article 17 Article 18
Total %	100%	Check % = total 100

Annex 4 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
4a	Number of undergraduate students who received training *	4, Laurenzo Martínez, Alejandro de Sedas, Jorge Lezcano (PMA); Eyvar Rodríguez (UNACHI)

Code	Description	Totals (plus additional detail as required)
4b	Number of training weeks provided	2 weeks
6a	Number of people receiving other forms of short-term education/training (ie not categories 1-5 above)	i. 17 Park guards, local community representatives, staff at ANAM and SINAC trained in use of life-zone map ii. 15 Staff at ANAM & SINAC trained in use and updating of life-zone map
6b	Number of training weeks not leading to formal qualification	i. 2 weeks ii. 0.5 weeks
7	Number of types of training materials produced for use by host country(s)	2: training DVD for course ii; maps for course i.
Research Measures		
8	Number of weeks spent by UK project staff on project work in host country(s)	26: six fieldtrips, three planning meetings, three network meetings
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	200 (?) species assessments using IUCN Red List criteria
10	Number of formal documents produced to assist work related to species identification, classification and recording.	4: checklists to the vascular plants, coprofagous scarabs and herpetofauna produced; list of keystone species to PILA
11a	Number of papers published or accepted for publication in peer reviewed journals	4 published 5 in preparation
11b	Number of papers published or accepted for publication elsewhere	1: map 'Zonas de biodiversidad del parque Internacioanl La Amistad (PILA) Costa Rica - Panama'
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1: ground-truthing biodiversity records, ca 12,000 records for vascular plants, coprofagous scarabs and herpetofauna
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	3: vascular plant records database at PMA; ATTA database at INBio and the herpetofauna database at UCR http://www.inbio.ac.cr/pila-darwin/
13a	Number of species reference collections established and handed over to host country(s)	4 vascular plants, 7692 collections to PMA & INBio coprofagous scarab beetles, xx collections to PMA & INBio herpetofauna, ca 380 collections, to PMA & UCR chytrid fungus collected from amphibian collections UCR
13b	Number of species reference collections enhanced and handed over to host country(s)	6: vascular plant collections at PMA & INBio; coprofagous scarab beetle collections at PMA & INBio;

Code	Description	Totals (plus additional detail as required)
		herpetofauna collections at PMA & INBio
Dissemination Measures		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	5 2006: planning meeting in David, Panama (Aug.); opening workshop at INBio, Costa Rica (Sept.) 2008: mapping network meeting in David, Panama (Aug.) 2009: presentation of project findings in INBio, Costa Rica (June); presentation of project findings in David, Panama (July)
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	7 2006: Seminar at the NHM (Oct.); Poster at the Interamerican botanical congress 2006, Santo Domingo, Dominican Republic (July) 2007: Presentation to the Binational Commission, Panama (June) 2008: Presentation to the UNESCO World Heritage Centre / IUCN Mission 'Reactive Monitoring to the Talamanca Range La Amistad Reserves/ La Amistad National Park- Pila (Feb.); Presentation to the Binational Commission, Panama (Aug.) 2009: Seminar at the NHM (Sept.); oral presentation to the conference celebrating 250 years of RBG Kew (Oct.)
15a	Number of national press releases or publicity articles in host country(s)	2
15c	Number of national press releases or publicity articles in UK	1
16a	Number of issues of newsletters produced in the host country(s)	4
16b	Estimated circulation of each newsletter in the host country(s)	50
16c	Estimated circulation of each newsletter in the UK	12
17a	Number of dissemination networks established	1, through project website

Code	Description	Totals (plus additional detail as required)
17b	Number of dissemination networks enhanced or extended	3, Binational Commission, ANAM, SINAC
18b	Number of national TV programme/features in the UK	1, ca 10 minute clip in BBC documentary 'Museum of Life' to be screened April 2010
18c	Number of local TV programme/features in host country	1, TV news
19a	Number of national radio interviews/features in host country(s)	2
19b	Number of national radio interviews/features in the UK	2, BBC Scotland, Radio 5
Physical Measures		
20	Estimated value (£s) of physical assets handed over to host country(s)	£4,896.27 Camping equipment, digital cameras, GPSs
22	Number of permanent field plots established	120?- virtual i.e. coordinate based, not physically marked in the field
23	Value of additional resources raised for project	ANAM, ca £12,000: vehicle hire, provision of field staff, assistance with helicopter hire British Airways, ca £11,000: four free return flights to Houston / New York, Club Class under their sponsorship agreement with NHM
Other Measures used by the project and not currently including in DI standard measures		
	Number of national newspaper interviews/features in host country(s)	3, La Prensa (2009), La Nacion (2; 2007, 2008)
	Number of national newspaper interviews/features in the UK	6, The Guardian, Daily Mail, The Times, Nature (all 2007)
	Number of newspaper / web-based news interviews/features outside of the UK / host countries	30, a wide range of networks from Spain, Germany and the US, including National Geographic website (all 2007)
	Number of regional newspaper interviews/features in the UK	2, The Metro, The Evening Standard (all 2007)
	Number of new species discovered / described	35, 15 amphibian, 3 reptiles, 15 vascular plants, 2 coprofagous scarab beetles
	Number of field trips	7
	Number of digital images / species disseminated online	Ca 7,500 images of ca 1500 species at http://lucina.inbio.ac.cr/m3sINBio/getGallery
	Maps / layer added to Googlearth	1, layer of draft map present on Googlearth; final draft of map to be added by ANAM by end of 2009

Annex 5 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
journals	*Monro A.K. & Rodríguez, A. Nomenclatural synopsis of Mesoamerican *Urera* Gaudich. (Urticaceae) and three new species. *Annals of the Missouri Botanical Garden*	Allen Press, St Louis	Inter Library Loan	By subscription
journals	*Rodríguez, A. & A.K. Monro. 2008. Cinco Nuevas especies de *Pilea* Lindley (Urticaceae) de Costa Rica y Panamá *Journal of the Botanical Research Institute of Texas* 2: 995 – 1007	Brit Press, Fort Worth	http://www.brit.org/nc/brit-press/jbrit/	By subscription
journals	*Soto, A. & Monro, A.K. 2008. Una nueva especie de *Cuatresia* (Solanaceae) de Costa Rica y Panamá. Journal of the Botanical Research Institute of Texas	Brit Press, Fort Worth	http://www.brit.org/nc/brit-press/jbrit/	By subscription
journals	*Solano, D. 2008. *Talamancalia boquetensis* (Asteraceae), un nuevo registro en la flora de Costa Rica. Brenesia 69: 73-74	Museo Nacional de Costa Rica, San José	Inter Library Loan	By subscription
map	* INBio, NHM, ANAM, UCR, University of Oxford, UNACHI, SINAC. 2009.	INBio, Santo Domingo	inbio.ac.cr/proyectopila-darwin	Free as a download

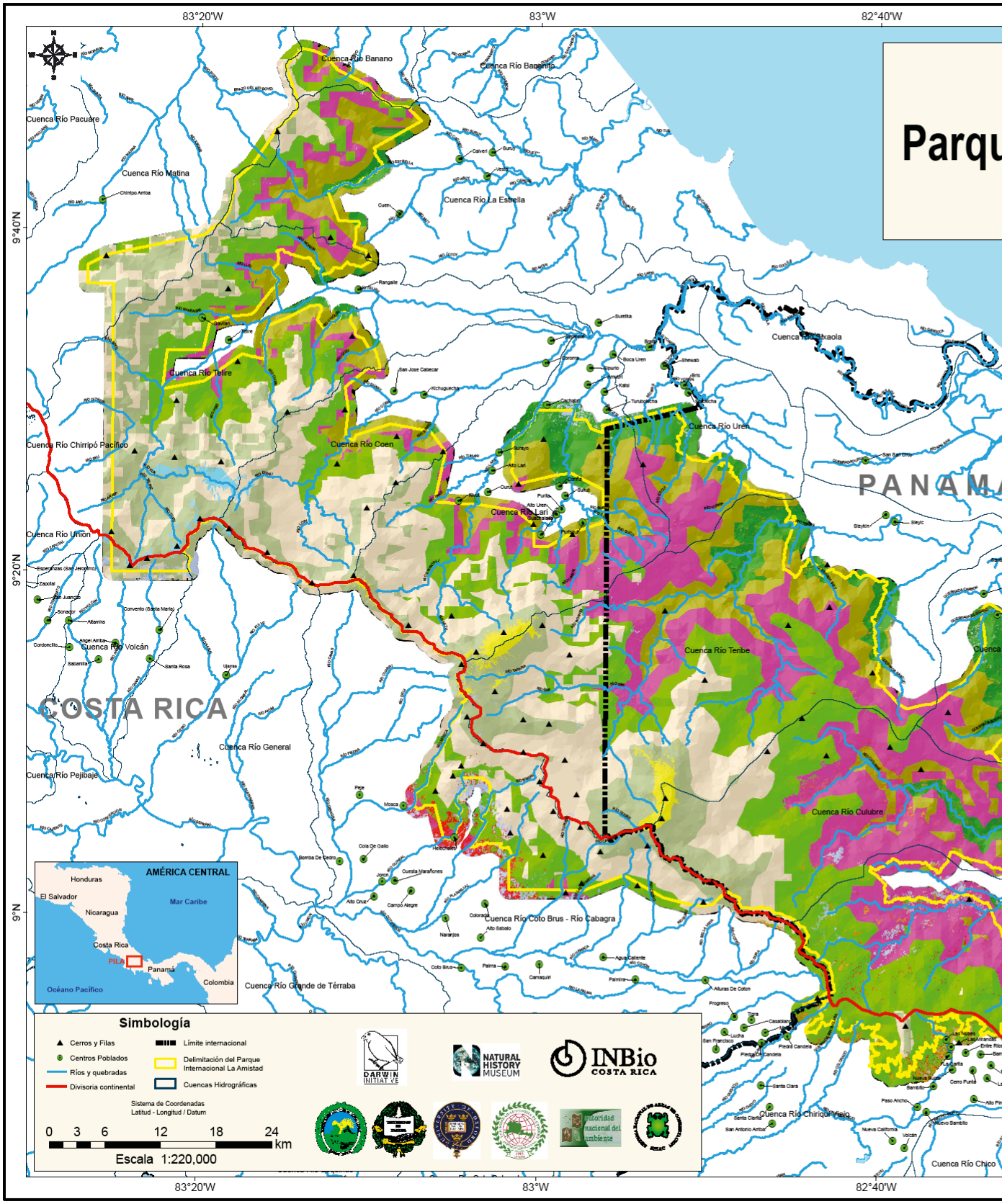
	Zonas de Biodivseridad del Parque Internacional La Amistad (PILA) Costa Rica-Panama			

Annex 6 Darwin Contacts

Ref No	15/027
Project Title	Baseline tools for management in PN La Amistad (Costa Rica/Panama)

UK Leader Details	
Name	Alex Monro
Role within Darwin Project	PI
Address	Botany Department, NHM, SW7 5BD, UK
Phone	
fax	
Email	
Other UK Contact (if relevant)	
Name	
Role within Darwin Project	
Address	
Phone	
Fax	
Email	
Partner 1	
Name	Nelson Zamora
Organisation	INBio
Role within Darwin Project	Host country PI
Address	Apdo. 22-3100, Santo Domingo de Heredia, Costa Rica
Fax	
Email	
Partner 2 (if relevant)	
Name	Darío Luque or Israel Tejada
Organisation	ANAM
Role within Darwin Project	Host country PIs
Address	Edif. 804 Albrook, Panamá Apartado C-0843-00793 Balboa, Ancón - Rep. de Panamá
Fax	
Email	

Annex 7 Project output 1: Unified map to the biodiversty zones of La Amistad International Park (PILA)



Fuente: Proyecto Herramientas básicas para el manejo del Parque Internacional La Amistad, PILA (Costa Rica-Panamá). Web: http://www.inbio.ac.cr/pila-darwin. Ejecutado por: NHM - Reino Unido, INBio - Costa Rica, SINAC - Co

Annex 8 Project output 3. Species lists for PILA (vascular plants, coprofagous scarabs, herpetofauna)

Vascular plants

Familia	Género	Especie
Acanthaceae	Aphelandra	arnoldii
Acanthaceae	Aphelandra	aurantiaca
Acanthaceae	Aphelandra	dolichantha
Acanthaceae	Aphelandra	seibertii
Acanthaceae	Aphelandra	tonduzii
Acanthaceae	Dicliptera	iopus
Acanthaceae	Dicliptera	pallida
Acanthaceae	Dyschoriste	quadrangularis
Acanthaceae	Habracanthus	silvaticus
Acanthaceae	Hansteinia	stricta
Acanthaceae	Hansteinia	ventricosa
Acanthaceae	Herpetacanthus	panamensis
Acanthaceae	Justicia	aurea
Acanthaceae	Justicia	brenesii
Acanthaceae	Justicia	oerstedii
Acanthaceae	Justicia	orosiensis
Acanthaceae	Justicia	pittieri
Acanthaceae	Justicia	tonduzii
Acanthaceae	Kalbreyeriella	rioquebradasiana
Acanthaceae	Lepidagathis	alopecuroidea
Acanthaceae	Mendoncia	brenesii
Acanthaceae	Odontonema	tubaeforme
Acanthaceae	Pseuderanthemum	cuspidatum
Acanthaceae	Razisea	spicata
Acanthaceae	Ruellia	jussieuoides
Acanthaceae	Stenostephanus	reflexiflorus
Acanthaceae	Stenostephanus	silvaticus
Actinidiaceae	Saurauia	montana
Actinidiaceae	Saurauia	pittieri
Actinidiaceae	Saurauia	rubiformis
Actinidiaceae	Saurauia	seibertii
Actinidiaceae	Saurauia	yasicae
Alstroemeriaceae	Bomarea	acuminata
Alstroemeriaceae	Bomarea	acutifolia
Alstroemeriaceae	Bomarea	andreana
Alstroemeriaceae	Bomarea	caldasii
Alstroemeriaceae	Bomarea	caudatisepala
Alstroemeriaceae	Bomarea	chiriquina
Alstroemeriaceae	Bomarea	costaricensis
Alstroemeriaceae	Bomarea	hirsuta
Alstroemeriaceae	Bomarea	obovata
Alstroemeriaceae	Bomarea	suberecta
Alzateaceae	Alzatea	verticillata
Amaranthaceae	Alternanthera	laguroides
Amaranthaceae	Alternanthera	lanceolata
Amaranthaceae	Alternanthera	mexicana
Amaranthaceae	Chamissoa	altissima
Amaranthaceae	Cyathula	achyranthoides
Amaranthaceae	Iresine	diffusa
Amaranthaceae	Iresine	nigra
Amaranthaceae	Pfaffia	costaricensis
Amaranthaceae	Pleuropetalum	pleiogynum
Amaranthaceae	Pleuropetalum	sprucei
Anacardiaceae	Mauria	heterophylla
Anacardiaceae	Toxicodendron	striatum
Annonaceae	Annona	pittieri
Annonaceae	Cymbopetalum	costaricense
Annonaceae	Desmopsis	maxonii
Annonaceae	Desmopsis	microcarpa
Annonaceae	Desmopsis	oerstedii
Annonaceae	Guatteria	amplifolia
Annonaceae	Guatteria	costaricensis
Annonaceae	Guatteria	diospyroides
Annonaceae	Guatteria	dolichopoda
Annonaceae	Guatteria	oliviformis
Annonaceae	Guatteria	talamancana
Annonaceae	Guatteria	tonduzii
Annonaceae	Guatteria	verrucosa
Annonaceae	Unonopsis	storkii
Anthericaceae	Hagenbachia	panamensis
Apiaceae	Arracacia	aegopodioides
Apiaceae	Eryngium	humile
Apiaceae	Hydrocotyle	leucocephala
Apiaceae	Hydrocotyle	mexicana
Apiaceae	Hydrocotyle	pusilla
Apiaceae	Hydrocotyle	ribifolia
Apiaceae	Hydrocotyle	umbellata
Apiaceae	Micropleura	renifolia
Apiaceae	Myrrhidendron	chirripoense
Apiaceae	Myrrhidendron	donnellsmithii
Apiaceae	Niphogeton	chirripoi
Apiaceae	Niphogeton	lingula
Apiaceae	Ottoa	oenanthoides
Apiaceae	Sanicula	liberta
Apocynaceae	Lacmellea	panamensis
Apocynaceae	Lacmellea	speciosa
Apocynaceae	Macoubea	mesoamericana
Apocynaceae	Mandevilla	hirsuta
Apocynaceae	Mandevilla	veraguasensis
Apocynaceae	Prestonia	longifolia
Apocynaceae	Rauvolfia	aphlebia
Apocynaceae	Stemmadenia	alfari
Apocynaceae	Tabernaemontana	amygdalifolia
Apocynaceae	Tabernaemontana	longipes
Aquifoliaceae	Ilex	chiriquensis
Aquifoliaceae	Ilex	costaricensis
Aquifoliaceae	Ilex	guianensis
Aquifoliaceae	Ilex	lamprophylla
Aquifoliaceae	Ilex	maxima

Aquifoliaceae	Ilex	pallida
Aquifoliaceae	Ilex	vulcanicola
Aquifoliaceae	Ilex	yurumanguinis
Araceae	Anthurium	alticola
Araceae	Anthurium	angustispadix
Araceae	Anthurium	antonioanum
Araceae	Anthurium	austin-smithii
Araceae	Anthurium	bakeri
Araceae	Anthurium	bittneri
Araceae	Anthurium	caperatum
Araceae	Anthurium	carnosum
Araceae	Anthurium	clavatum
Araceae	Anthurium	concinnatum
Araceae	Anthurium	consobrinum
Araceae	Anthurium	cotobrusii
Araceae	Anthurium	cucullispathum
Araceae	Anthurium	cuspidatum
Araceae	Anthurium	davidsoniae
Araceae	Anthurium	durandii
Araceae	Anthurium	fatoense
Araceae	Anthurium	formosum
Araceae	Anthurium	globosum
Araceae	Anthurium	gracililaminum
Araceae	Anthurium	hoffmannii
Araceae	Anthurium	hornitense
Araceae	Anthurium	interruptum
Araceae	Anthurium	lancifolium
Araceae	Anthurium	lentii
Araceae	Anthurium	longistipitatum
Araceae	Anthurium	louisii
Araceae	Anthurium	madisonianum
Araceae	Anthurium	michelii
Araceae	Anthurium	microspadix
Araceae	Anthurium	obtusilobum
Araceae	Anthurium	ochranthum
Araceae	Anthurium	oerstedianum
Araceae	Anthurium	orteganum
Araceae	Anthurium	pageanum
Araceae	Anthurium	paludosum
Araceae	Anthurium	panduriforme
Araceae	Anthurium	pentaphyllum
Araceae	Anthurium	pittieri
Araceae	Anthurium	prolatum
Araceae	Anthurium	propinquum
Araceae	Anthurium	protensum
Araceae	Anthurium	ramonense
Araceae	Anthurium	ranchoanum
Araceae	Anthurium	ravenii
Araceae	Anthurium	salvinii
Araceae	Anthurium	scandens
Araceae	Anthurium	scherzerianum
Araceae	Anthurium	seibertii
Araceae	Anthurium	teribense
Araceae	Anthurium	testaceum
Araceae	Anthurium	tilaranense
Araceae	Anthurium	tonduzii
Araceae	Anthurium	upalaense
Araceae	Anthurium	validifolium
Araceae	Anthurium	watermaliense
Araceae	Anthurium	wendlingeri
Araceae	Dieffenbachia	tonduzii
Araceae	Dracontium	spruceanum
Araceae	Homalomena	wendlandii
Araceae	Monstera	adansonii
Araceae	Monstera	deliciosa
Araceae	Monstera	dissecta
Araceae	Monstera	epipremnoides
Araceae	Monstera	oreophila
Araceae	Monstera	punctulata
Araceae	Monstera	sp A.
Araceae	Monstera	spruceana
Araceae	Monstera	standleyana
Araceae	Monstera	tenuis
Araceae	Philodendron	alticola
Araceae	Philodendron	anisotomum
Araceae	philodendron	aurantiifolium
Araceae	Philodendron	brenesii
Araceae	Philodendron	cotonense
Araceae	Philodendron	crassispathum
Araceae	Philodendron	dodsonii
Araceae	Philodendron	findens
Araceae	Philodendron	rothschuhianum
Araceae	Philodendron	sagittifolium
Araceae	Philodendron	schottianum
Araceae	Philodendron	standleyi
Araceae	Philodendron	straminicaule
Araceae	Philodendron	strictum
Araceae	Philodendron	sulcatum
Araceae	Philodendron	thalassicum
Araceae	Philodendron	tripartitum
Araceae	Philodendron	verrucosum
Araceae	Philodendron	wendlandii
Araceae	Philodendron	wilburii
Araceae	Rhodospatha	moritziana
Araceae	Rhodospatha	wendlandii
Araceae	Spathiphyllum	laeve
Araceae	Spathiphyllum	montanum
Araceae	Spathiphyllum	wendlandii
Araceae	Stenospermatio	angustifolium
Araceae	Stenospermatio	marantifolium
Araceae	Stenospermatio	sessile
Araceae	Stenospermatio	spruceanum
Araceae	Syngonium	hoffmannii
Araceae	Syngonium	peliocladum
Araceae	Syngonium	podophyllum
Araceae	Xanthosoma	undipes
Araceae_	Anthurium	acutangulum
Araliaceae	Dendropanax	arboreus
Araliaceae	Dendropanax	capillaris
Araliaceae	Dendropanax	globosus

Araliaceae	Dendropanax	gonatopodus
Araliaceae	Dendropanax	latilobus
Araliaceae	Dendropanax	sessiliflorus
Araliaceae	Oreopanax	capitatus
Araliaceae	Oreopanax	costaricensis
Araliaceae	Oreopanax	nicaraguensis
Araliaceae	Oreopanax	oerstedianus
Araliaceae	Oreopanax	oligocarpus
Araliaceae	Oreopanax	paramicolus
Araliaceae	Oreopanax	pycnocarpus
Araliaceae	Oreopanax	spathulatus
Araliaceae	Oreopanax	standleyi
Araliaceae	Oreopanax	striatus
Araliaceae	Oreopanax	xalapensis
Araliaceae	Schefflera	brenesii
Araliaceae	Schefflera	cartagoensis
Araliaceae	Schefflera	instita
Araliaceae	Schefflera	robusta
Araliaceae	Schefflera	rodriguesiana
Araliaceae	Schefflera	seibertii
Araliaceae	Schefflera	systyla
Arecaceae	Aiphanes	hirsuta
Arecaceae	Bactris	dianeura
Arecaceae	Bactris	hondurensis
Arecaceae	Calyptrogyne	ghiesbreghtiana
Arecaceae	Calyptrogyne	herrerae
Arecaceae	Chamaedorea	amabilis
Arecaceae	Chamaedorea	brachyclada
Arecaceae	Chamaedorea	costaricana
Arecaceae	Chamaedorea	crucensis
Arecaceae	Chamaedorea	deckeriana
Arecaceae	Chamaedorea	hodelii
Arecaceae	Chamaedorea	lucidifrons
Arecaceae	Chamaedorea	macrospadix
Arecaceae	Chamaedorea	palmeriana
Arecaceae	Chamaedorea	pinnatifrons
Arecaceae	Chamaedorea	pittieri
Arecaceae	Chamaedorea	pumila
Arecaceae	Chamaedorea	pygmaea
Arecaceae	Chamaedorea	rossteniorum
Arecaceae	Chamaedorea	scheryi
Arecaceae	Chamaedorea	tepejilote
Arecaceae	Chamaedorea	warscewiczii
Arecaceae	Chamaedorea	woodsoniana
Arecaceae	Colpothrinax	aphanopetala
Arecaceae	Geonoma	talamancana
Arecaceae	Geonoma	talamancana
Arecaceae	Hyospathe	elegans
Arecaceae	Prestoea	acuminata
Arecaceae	Prestoea	ensiformis
Arecaceae	Prestoea	longepetiolata
Arecaceae	Synechanthus	fibrosus
Arecaceae	Synechanthus	warscewiczianus
Aristolochiaceae	Aristolochia	sprucei
Aristolochiaceae	Aristolochia	tonduzii
Asclepiadaceae	Funastrum	clausum
Asteraceae	Acmella	papposa
Asteraceae	Acmella	radicans
Asteraceae	Adenostemma	platyphyllum
Asteraceae	Ageratina	anisochroma
Asteraceae	Ageratina	badia
Asteraceae	Ageratina	chiriquensis
Asteraceae	Ageratina	contigua
Asteraceae	Ageratina	croatii
Asteraceae	Ageratina	herrerae
Asteraceae	Ageratina	ixiocladon
Asteraceae	Ageratina	kupperi
Asteraceae	Ageratina	ligustrina
Asteraceae	Ageratina	molinae
Asteraceae	Ageratina	pichinchensis
Asteraceae	Ageratina	whitei
Asteraceae	Ageratum	chiriquense
Asteraceae	Archibaccharis	jacksonii
Asteraceae	Archibaccharis	schiedeana
Asteraceae	Ayapana	elata
Asteraceae	Baccharis	pedunculata
Asteraceae	Baccharis	trinervis
Asteraceae	Bartlettina	chiriquensis
Asteraceae	Bartlettina	maxonii
Asteraceae	Bartlettina	prionophylla
Asteraceae	Bidens	pilosa
Asteraceae	Bidens	reptans
Asteraceae	Calea	prunifolia
Asteraceae	Centratherum	punctatum
Asteraceae	Chaptalia	nutans
Asteraceae	Chionolaena	costaricensis
Asteraceae	Chionolaena	salicifolia
Asteraceae	Chromolaena	collina
Asteraceae	Chromolaena	laevigata
Asteraceae	Chromolaena	odorata
Asteraceae	Cirsium	mexicanum
Asteraceae	Cirsium	subcoriaceum
Asteraceae	Clibadium	anceps
Asteraceae	Clibadium	eggersii
Asteraceae	Clibadium	glomeratum
Asteraceae	Clibadium	leiocarpum
Asteraceae	Conyza	bonariensis
Asteraceae	Conyza	canadensis
Asteraceae	Conyza	laevigata
Asteraceae	Cotula	minuta
Asteraceae	Crassocephalu	crepidioides
Asteraceae	Critonia	daleoides
Asteraceae	Critonia	morifolia
Asteraceae	Critonia	sexangularis
Asteraceae	Decachaeta	thieleana
Asteraceae	Diplostephium	costaricense
Asteraceae	Diplostephium	floribundum
Asteraceae	Eclipta	prostrata
Asteraceae	Elephantopus	mollis
Asteraceae	Erato	vulcanica

Asteraceae	Erechtites	valerianifolus
Asteraceae	Fleischmannia	allenii
Asteraceae	Fleischmannia	croatii
Asteraceae	Fleischmannia	plectranthifolia
Asteraceae	Fleischmannia	pycnocephala
Asteraceae	Galinsoga	quadriradiata
Asteraceae	Gamochaeta	americana
Asteraceae	Gamochaeta	standleyi
Asteraceae	Gnaphalium	attenuatum
Asteraceae	Gnaphalium	elegans
Asteraceae	Gnaphalium	roseum
Asteraceae	Gongrostylus	costaricensis
Asteraceae	Heterocondylus	vitalbae
Asteraceae	Hieracium	abscissum
Asteraceae	Hieracium	irasuense
Asteraceae	Ichthyothere	scandens
Asteraceae	Iltisia	echandiensis
Asteraceae	Jaegeria	hirta
Asteraceae	Jungia	ferruginea
Asteraceae	Koanophyllon	hylonomum
Asteraceae	Koanophyllon	pittieri
Asteraceae	Laestadia	costaricensis
Asteraceae	Lagenifera	panamensis
Asteraceae	Lasianthaea	fruticosa
Asteraceae	Lepidaploa	chiriquiensis
Asteraceae	Melanthera	nivea
Asteraceae	Microspermum	repens
Asteraceae	Mikania	aschersonii
Asteraceae	Mikania	banisteriae
Asteraceae	Mikania	castroi
Asteraceae	Mikania	cordifolia
Asteraceae	Mikania	hookeriana
Asteraceae	Mikania	iltisii
Asteraceae	Mikania	leiostachya
Asteraceae	Mikania	micrantha
Asteraceae	Mikania	pittieri
Asteraceae	Mikania	sp.D
Asteraceae	Munnozia	senecionidis
Asteraceae	Munnozia	wilburii
Asteraceae	Myriactis	minuscula
Asteraceae	Myriactis	westonii
Asteraceae	Neomirandea	allenii
Asteraceae	Neomirandea	angularis
Asteraceae	Neomirandea	araliifolia
Asteraceae	Neomirandea	carnosa
Asteraceae	Neomirandea	chiriquensis
Asteraceae	Neomirandea	croatii
Asteraceae	Neomirandea	eximia
Asteraceae	Neomirandea	guevarae
Asteraceae	Neomirandea	panamensis
Asteraceae	Neomirandea	parasitica
Asteraceae	Neomirandea	pseudopsoralea
Asteraceae	Neomirandea	psoralea
Asteraceae	Neomirandea	standleyi
Asteraceae	Neomirandea	turrialbae
Asteraceae	Neurolaena	lobata
Asteraceae	Oyedaea	verbesinoides
Asteraceae	Piptocoma	discolor
Asteraceae	Polyanthina	nemorosa
Asteraceae	Pseudelephantopus	spiralis
Asteraceae	Rumfordia	polymnioides
Asteraceae	Sabazia	sarmentosa
Asteraceae	Schistocarpha	croatii
Asteraceae	Schistocarpha	eupatorioides
Asteraceae	Senecio	andicola
Asteraceae	Senecio	cooperi
Asteraceae	Senecio	costaricensis
Asteraceae	Senecio	firmipes
Asteraceae	Senecio	grandifolius
Asteraceae	Senecio	heterogamus
Asteraceae	Senecio	megaphyllus
Asteraceae	Senecio	multivenius
Asteraceae	Senecio	parasiticus
Asteraceae	Senecio	phanerandrus
Asteraceae	Sigesbeckia	jorullensis
Asteraceae	Sinclairia	polyantha
Asteraceae	Smallanthus	maculatus
Asteraceae	Sonchus	oleraceus
Asteraceae	Tagetes	filifolia
Asteraceae	Verbesina	fuscasiccans
Asteraceae	Verbesina	pleistocephala
Asteraceae	Verbesina	turbacensis
Asteraceae	Vernonia	arborescens
Asteraceae	Vernonia	brachiata
Asteraceae	Vernonia	patens
Asteraceae	Viguiera	sylvatica
Asteraceae	Werneria	nubigena
Asteraceae	Westoniella	eriocephala
Asteraceae	Westoniella	kohkemperi
Asteraceae	Westoniella	lanuginosa
Asteraceae	Youngia	japonica
Asteraceae	Zexmenia	virgulta
Balanophoraceae	Corynaea	crassa
Balanophoraceae	Helosis	cayennensis
Balanophoraceae	Langsdorffia	hypogaea
Balsaminaceae	Impatiens	turrialbana
Balsaminaceae	Impatiens	walleriana
Begoniaceae	Begonia	brevicyma
Begoniaceae	Begonia	carletonii
Begoniaceae	Begonia	convallariodora
Begoniaceae	Begonia	cooperi
Begoniaceae	Begonia	copeyana
Begoniaceae	Begonia	estrellensis
Begoniaceae	Begonia	glabra
Begoniaceae	Begonia	heydei
Begoniaceae	Begonia	involucrata
Begoniaceae	Begonia	mucrostipula
Begoniaceae	Begonia	oaxacana
Begoniaceae	Begonia	parviflora
Begoniaceae	Begonia	quaternata

Begoniaceae	Begonia	semiovata
Begoniaceae	Begonia	strigillosa
Begoniaceae	Begonia	urophylla
Begoniaceae	Begonia	urticae
Begoniaceae	Begonia	vestita
Berberidaceae	Berberis	nigricans
Betulaceae	Alnus	acuminata
Bignoniaceae	Amphilophium	paniculatum
Bignoniaceae	Amphilophium	pannosum
Bignoniaceae	Amphitecna	kennedyi
Bignoniaceae	Amphitecna	sessilifolia
Bignoniaceae	Arrabidaea	chica
Bignoniaceae	Arrabidaea	verrucosa
Bignoniaceae	Melloa	quadrivalvis
Bignoniaceae	Tourrettia	lappacea
Bombacaceae	Pachira	aquatica
Bombacaceae	Quararibea	parvifolia
Bombacaceae	Quararibea	pendula
Bombacaceae	Spirotheca	rosea
Boraginaceae	Cordia	croatii
Boraginaceae	Cordia	cymosa
Boraginaceae	Cordia	eriostigma
Boraginaceae	Cordia	lucidula
Boraginaceae	Cordia	porcata
Boraginaceae	Cordia	spinescens
Boraginaceae	Cynoglossum	amabile
Boraginaceae	Hackelia	mexicana
Boraginaceae	Moritzia	lindenii
Boraginaceae	Tournefortia	angustiflora
Boraginaceae	Tournefortia	bicolor
Boraginaceae	Tournefortia	cuspidata
Boraginaceae	Tournefortia	glabra
Boraginaceae	Tournefortia	hirsutissima
Boraginaceae	Tournefortia	maculata
Boraginaceae	Tournefortia	ramonensis
Boraginaceae	Tournefortia	subspicata
Boraginaceae	Tournefortia	urceolata
Boraginaceae	Varronia	spinescens
Brassicaceae	Brassica	rapa
Brassicaceae	Cardamine	bonariensis
Brassicaceae	Cardamine	flexuosa
Brassicaceae	Cardamine	fulcrata
Brassicaceae	Cardamine	ovata
Brassicaceae	Lepidium	costaricense
Brassicaceae	Romanschulzia	costaricensis
Bromeliaceae	Aechmea	mariae-reginae
Bromeliaceae	Aechmea	mexicana
Bromeliaceae	Aechmea	veitchii
Bromeliaceae	Catopsis	nitida
Bromeliaceae	Catopsis	nutans
Bromeliaceae	Catopsis	wangerinii
Bromeliaceae	Greigia	columbiana
Bromeliaceae	Greigia	sylvicola
Bromeliaceae	Guzmania	angustifolia
Bromeliaceae	Guzmania	blassii
Bromeliaceae	Guzmania	condensata
Bromeliaceae	Guzmania	desautelsii
Bromeliaceae	Guzmania	donnellsmithii
Bromeliaceae	Guzmania	glomerata
Bromeliaceae	Guzmania	herrerae
Bromeliaceae	Guzmania	lingulata
Bromeliaceae	Guzmania	musaica
Bromeliaceae	Guzmania	nicaraguensis
Bromeliaceae	Guzmania	obtusiloba
Bromeliaceae	Guzmania	plicatifolia
Bromeliaceae	Guzmania	polycephala
Bromeliaceae	Guzmania	scandens
Bromeliaceae	Guzmania	scherzeriana
Bromeliaceae	Guzmania	spectabilis
Bromeliaceae	Guzmania	sprucei
Bromeliaceae	Guzmania	stenostachya
Bromeliaceae	Mezobromelia	pleiosticha
Bromeliaceae	Pitcairnia	atrorubens
Bromeliaceae	Pitcairnia	brittoniana
Bromeliaceae	Pitcairnia	kalbreyeri
Bromeliaceae	Pitcairnia	wendlandii
Bromeliaceae	Puya	dasylirioides
Bromeliaceae	Puya	floccosa
Bromeliaceae	Racinaea	adpressa
Bromeliaceae	Racinaea	schumanniana
Bromeliaceae	Ronnbergia	hathewayi
Bromeliaceae	Tillandsia	acostae
Bromeliaceae	Tillandsia	anceps
Bromeliaceae	Tillandsia	biflora
Bromeliaceae	Tillandsia	bulbosa
Bromeliaceae	Tillandsia	complanata
Bromeliaceae	Tillandsia	excelsa
Bromeliaceae	Tillandsia	festucoides
Bromeliaceae	Tillandsia	insignis
Bromeliaceae	Tillandsia	leiboldiana
Bromeliaceae	Tillandsia	longifolia
Bromeliaceae	Tillandsia	oerstediana
Bromeliaceae	Tillandsia	punctulata
Bromeliaceae	Tillandsia	usneoides
Bromeliaceae	Vriesea	chontalensis
Bromeliaceae	Vriesea	heliconioides
Bromeliaceae	Vriesea	incurva
Bromeliaceae	Vriesea	monstrum
Bromeliaceae	Werauhia	acuminata
Bromeliaceae	Werauhia	balanophora
Bromeliaceae	Werauhia	barii
Bromeliaceae	Werauhia	brunei
Bromeliaceae	Werauhia	hygrometrica
Bromeliaceae	Werauhia	laxa
Bromeliaceae	Werauhia	luis-gomezii
Bromeliaceae	Werauhia	macrochlamys
Bromeliaceae	Werauhia	ororiensis
Bromeliaceae	Werauhia	pedicellata
Bromeliaceae	Werauhia	umbrosa
Bromeliaceae	Werauhia	viridiflora

Bromeliaceae	Werauhia	werckleana
Bromeliaceae	Werauhia	williamsii
Bromeliaceae	Werauhia	woodsoniana
Brunelliaceae	Brunellia	costaricensis
Buddlejaceae	Buddleja	americana
Buddlejaceae	Buddleja	nitida
Buddlejaceae	buddleja	skutchii
Burmanniaceae	Apteria	aphylla
Burmanniaceae	Burmannia	kalbreyeri
Burmanniaceae	Cymbocarpa	refracta
Burmanniaceae	dictyostega	orobanchoides
Burmanniaceae	Gymnosiphon	panamensis
Burmanniaceae	Gymnosiphon	suaveolens
Cactaceae	Epiphyllum	cartagense
Cactaceae	Epiphyllum	phyllanthus
Campanulaceae	Burmeistera	almedae
Campanulaceae	Burmeistera	altoculubrensis
Campanulaceae	Burmeistera	chiriquiensis
Campanulaceae	Burmeistera	cyclostigmata
Campanulaceae	Burmeistera	dendrophila
Campanulaceae	Burmeistera	glauca
Campanulaceae	Burmeistera	mcvaughii
Campanulaceae	Burmeistera	microphylla
Campanulaceae	Burmeistera	parviflora
Campanulaceae	Burmeistera	sp.A
Campanulaceae	Burmeistera	toroensis
Campanulaceae	Burmeistera	utleyi
Campanulaceae	Burmeistera	vulgaris
Campanulaceae	Centropogon	congestus
Campanulaceae	Centropogon	costaricae
Campanulaceae	Centropogon	ferrugineus
Campanulaceae	Centropogon	floricomus
Campanulaceae	Centropogon	granulosus
Campanulaceae	Centropogon	gutierrezii
Campanulaceae	Centropogon	leucocarpus
Campanulaceae	Centropogon	luteynii
Campanulaceae	Centropogon	palmanus
Campanulaceae	Centropogon	smithii
Campanulaceae	Centropogon	solanifolius
Campanulaceae	Centropogon	talamancensis
Campanulaceae	Lobelia	irazuensis
Campanulaceae	Lobelia	laxiflora
Campanulaceae	Lobelia	longicaulis
Campanulaceae	Siphocampylus	maxonis
Cannaceae	Canna	tuerckheimii
Capparaceae	Capparis	filipes
Capparaceae	Podandrogyne	decipiens
Capparaceae	Podandrogyne	formosa
Caprifoliaceae	Sambucus	canadensis
Caprifoliaceae	Viburnum	costaricanum
Caprifoliaceae	Viburnum	stellatotomentosum
Caprifoliaceae	Viburnum	venustum
Caricaceae	Jacaratia	dolichaula
Caryophyllaceae	Arenaria	lanuginosa
Caryophyllaceae	Stellaria	cuspidata
Caryophyllaceae	Stellaria	irazuensis
Caryophyllaceae	Stellaria	ovata
Cecropiaceae	Cecropia	angustifolia
Cecropiaceae	Coussapoa	villosa
Celastraceae	Celastrus	vulcanicola
Celastraceae	Crossopetalum	enervium
Celastraceae	Crossopetalum	parviflorum
Celastraceae	Euonymus	costaricensis
Celastraceae	Maytenus	woodsonii
Celastraceae	Microtropis	occidentalis
Celastraceae	Perrottetia	longistylis
Celastraceae	Zinowiewia	integerrima
Ceratophyllaceae	Ceratophyllum	demersum
Chloranthaceae	Hedyosmum	bonplandianum
Chloranthaceae	Hedyosmum	brenesii
Chloranthaceae	Hedyosmum	costaricense
Chloranthaceae	Hedyosmum	goudotianum
Chrysobalanaceae	Couepia	platycalyx
Chrysobalanaceae	Hirtella	triandra
Chrysobalanaceae	Licania	jefensis
Chrysobalanaceae	Licania	micrantha
Clethraceae	Clethra	consimilis
Clethraceae	Clethra	costaricensis
Clethraceae	Clethra	formosa
Clethraceae	Clethra	gelida
Clethraceae	Clethra	lanata
Clethraceae	Clethra	pyrogena
Clusiaceae	Chrysochlamys	allenii
Clusiaceae	Chrysochlamys	glauca
Clusiaceae	Chrysochlamys	nicaraguensis
Clusiaceae	Chrysochlamys	psychotriifolia
Clusiaceae	Chrysochlamys	silvicola
Clusiaceae	Chrysochlamys	tenuis
Clusiaceae	Clusia	croatii
Clusiaceae	Clusia	dukei
Clusiaceae	Clusia	gracilis
Clusiaceae	Clusia	multiflora
Clusiaceae	Clusia	osseocarpa
Clusiaceae	Clusia	palmana
Clusiaceae	Clusia	salvinii
Clusiaceae	Clusia	sp.B
Clusiaceae	Clusia	sp.C
Clusiaceae	Clusia	sp.E
Clusiaceae	Clusia	sp.F
Clusiaceae	Clusia	stenophylla
Clusiaceae	Clusia	torresii
Clusiaceae	Clusiella	isthmensis
Clusiaceae	Dystovomita	paniculata
Clusiaceae	Garcinia	intermedia
Clusiaceae	Garcinia	madruno
Clusiaceae	Marila	pluricostata
Clusiaceae	Marila	sp. A
Clusiaceae	Symphonia	globulifera
Clusiaceae	Tovomita	stylosa
Combretaceae	Combretum	laxum

Commelinaceae	Commelina	diffusa
Commelinaceae	Dichorisandra	amabilis
Commelinaceae	Dichorisandra	hexandra
Commelinaceae	Floscopa	robusta
Commelinaceae	Tinantia	standleyi
Commelinaceae	Tradescantia	poelliae
Commelinaceae	Tradescantia	schippii
Commelinaceae	Tradescantia	zanonia
Convallariaceae	Maianthemum	gigas
Convallariaceae	Maianthemum	paludicola
Convallariaceae	Maianthemum	paniculatum
Convolvulaceae	Ipomoea	batatas
Convolvulaceae	Ipomoea	batatoides
Convolvulaceae	Ipomoea	indica
Convolvulaceae	Ipomoea	lindenii
Convolvulaceae	Ipomoea	santillanii
Cornaceae	Cornus	disciflora
Cornaceae	Nyssa	talamancana
Costaceae	Costus	bracteatus
Costaceae	Costus	comosus
Costaceae	Costus	curvibracteatus
Costaceae	Costus	glaucus
Costaceae	Costus	laevis
Costaceae	Costus	lima
Costaceae	Costus	pulverulentus
Costaceae	Costus	scaber
Costaceae	Costus	villosissimus
Costaceae	Costus	wilsonii
Cucurbitaceae	Cayaponia	granatensis
Cucurbitaceae	Cyclanthera	cogniauxii
Cucurbitaceae	Cyclanthera	langaei
Cucurbitaceae	Cyclanthera	multifoliola
Cucurbitaceae	Gurania	coccinea
Cucurbitaceae	Gurania	makoyana
Cucurbitaceae	Gurania	tubulosa
Cucurbitaceae	Rytidostylis	gracilis
Cucurbitaceae	Sechium	panamense
Cucurbitaceae	Sechium	pittieri
Cucurbitaceae	Sechium	talamancense
Cucurbitaceae	Sechium	venosum
Cucurbitaceae	Sicydium	schiedeanum
Cunoniaceae	Weinmannia	balbisiana
Cunoniaceae	Weinmannia	burserifolia
Cunoniaceae	Weinmannia	fagaroides
Cunoniaceae	Weinmannia	pinnata
Cunoniaceae	Weinmannia	vulcanicola
Cunoniaceae	Weinmannia	wercklei
Cupressaceae	Cupressus	lusitanica
Cyclanthaceae	Asplundia	albicarpa
Cyclanthaceae	Asplundia	aurantiaca
Cyclanthaceae	Asplundia	ceci
Cyclanthaceae	Asplundia	euryspatha
Cyclanthaceae	Asplundia	flavovaginata
Cyclanthaceae	Asplundia	isabellina
Cyclanthaceae	Asplundia	microphylla
Cyclanthaceae	Asplundia	multistaminata
Cyclanthaceae	Asplundia	sanctae-ritae
Cyclanthaceae	Asplundia	stenophylla
Cyclanthaceae	Asplundia	utilis
Cyclanthaceae	Asplundia	vagans
Cyclanthaceae	Carludovica	rotundifolia
Cyclanthaceae	Chorigyne	densiflora
Cyclanthaceae	Chorigyne	ensiformis
Cyclanthaceae	Chorigyne	pendula
Cyclanthaceae	Cyclanthus	bipartitus
Cyclanthaceae	Dicranopygium	grandifolium
Cyclanthaceae	Dicranopygium	umbrophilum
Cyclanthaceae	Dicranopygium	wallisii
Cyclanthaceae	Dicranopygium	wedelii
Cyclanthaceae	Evodianthus	funifer
Cyclanthaceae	Sphaeradenia	chiriquensis
Cyclanthaceae	Sphaeradenia	garciae
Cyclanthaceae	Sphaeradenia	laucheana
Cyclanthaceae	Sphaeradenia	magniglobula
Cyclanthaceae	Sphaeradenia	occidentalis
Cyclanthaceae	Sphaeradenia	pachystigma
Cyclanthaceae	Sphaeradenia	praetermissa
Cyclanthaceae	Sphaeradenia	rostellata
Cyperaceae	Carex	bonplandii
Cyperaceae	Carex	donnell-smithii
Cyperaceae	Carex	jamesonii
Cyperaceae	Carex	lemanniana
Cyperaceae	Carex	polystachya
Cyperaceae	Carex	porrecta
Cyperaceae	Carex	purdiei
Cyperaceae	Carex	pygmaea
Cyperaceae	Cladium	jamaicense
Cyperaceae	Cyperus	hermaphroditus
Cyperaceae	Cyperus	niger
Cyperaceae	Cyperus	reflexus
Cyperaceae	Cyperus	tabina
Cyperaceae	Cyperus	tenerrimus
Cyperaceae	Eleocharis	acicularis
Cyperaceae	Eleocharis	elegans
Cyperaceae	Kyllinga	brevifolia
Cyperaceae	Mapania	cuatrecasasii
Cyperaceae	Oreobolus	goeppingeri
Cyperaceae	Oreobolus	venezuelensis
Cyperaceae	Rhynchospora	cabecarae
Cyperaceae	Rhynchospora	globosa
Cyperaceae	Rhynchospora	hieronymi
Cyperaceae	Rhynchospora	hirsuta
Cyperaceae	Rhynchospora	locuples
Cyperaceae	Rhynchospora	macrochaeta
Cyperaceae	Rhynchospora	oreoboloidea
Cyperaceae	Rhynchospora	polyphylla
Cyperaceae	Rhynchospora	radicans
Cyperaceae	Rhynchospora	rugosa
Cyperaceae	Rhynchospora	ruiziana
Cyperaceae	Rhynchospora	schaffneri

Cyperaceae	Rhynchospora	schiedeana
Cyperaceae	Rhynchospora	talamancensis
Cyperaceae	Rhynchospora	torresiana
Cyperaceae	Rhynchospora	tuerckheimii
Cyperaceae	Rhynchospora	vulcani
Cyperaceae	Scleria	distans
Cyperaceae	Scleria	secans
Cyperaceae	Scleria	tenella
Cyperaceae	Uncinia	hamata
Dichapetalaceae	Dichapetalum	brenesii
Dichapetalaceae	Dichapetalum	donnell-smithii
Dichapetalaceae	Dichapetalum	odoratum
Dichapetalaceae	Dichapetalum	pedunculatum
Dichapetalaceae	Tapura	guianensis
Dioscoreaceae	Dioscorea	amazonum
Dioscoreaceae	Dioscorea	convolvulacea
Dioscoreaceae	Dioscorea	lepida
Dioscoreaceae	Dioscorea	natalia
Dioscoreaceae	Dioscorea	polygonoides
Dioscoreaceae	Dioscorea	racemosa
Dioscoreaceae	Dioscorea	standleyi
Elaeocarpaceae	Sloanea	ampla
Elaeocarpaceae	Sloanea	brenesii
Elaeocarpaceae	Sloanea	faginea
Elaeocarpaceae	Sloanea	guianensis
Elaeocarpaceae	Sloanea	laevigata
Elaeocarpaceae	Sloanea	medusula
Equisetaceae	Equisetum	bogotense
Equisetaceae	Equisetum	giganteum
Eremolepidaceae	Antidaphne	viscoidea
Ericaceae	Cavendishia	atroviolacea
Ericaceae	Cavendishia	axillaris
Ericaceae	Cavendishia	bracteata
Ericaceae	Cavendishia	callista
Ericaceae	Cavendishia	calycina
Ericaceae	Cavendishia	capitulata
Ericaceae	Cavendishia	chiriquensis
Ericaceae	Cavendishia	ciliata
Ericaceae	Cavendishia	complectens
Ericaceae	Cavendishia	confertiflora
Ericaceae	Cavendishia	davidsei
Ericaceae	Cavendishia	endresii
Ericaceae	Cavendishia	gomezii
Ericaceae	Cavendishia	limonensis
Ericaceae	Cavendishia	luteynii
Ericaceae	Cavendishia	megabracteata
Ericaceae	Cavendishia	melastomoides
Ericaceae	Cavendishia	quercina
Ericaceae	Cavendishia	quereme
Ericaceae	Cavendishia	talamancensis
Ericaceae	Chimaphila	maculata
Ericaceae	Comarostaphylis	arbutoides
Ericaceae	Didonica	pendula
Ericaceae	Disterigma	hammelii
Ericaceae	Disterigma	humboldtii
Ericaceae	Disterigma	pilosum
Ericaceae	Disterigma	trimerum
Ericaceae	Gaultheria	gracilis
Ericaceae	Gonocalyx	almedae
Ericaceae	Lateropora	ovata
Ericaceae	Macleania	rupestris
Ericaceae	Monotropa	uniflora
Ericaceae	Pernettya	prostrata
Ericaceae	Psammisia	ramiflora
Ericaceae	Psammisia	ulbrichiana
Ericaceae	Psammisia	williamsii
Ericaceae	Satyria	allenii
Ericaceae	Satyria	meiantha
Ericaceae	Satyria	panurensis
Ericaceae	Satyria	warszewiczii
Ericaceae	Sphyrospermum	buxifolium
Ericaceae	Sphyrospermum	cordifolium
Ericaceae	Sphyrospermum	dissimile
Ericaceae	Sphyrospermum	standleyi
Ericaceae	Themistoclesia	costaricensis
Ericaceae	Themistoclesia	horquetensis
Ericaceae	Themistoclesia	pentandra
Ericaceae	Themistoclesia	smithiana
Ericaceae	Thibaudia	costaricensis
Ericaceae	Vaccinium	bocatorense
Ericaceae	Vaccinium	consanguineum
Ericaceae	Vaccinium	costaricense
Ericaceae	Vaccinium	floccosum
Ericaceae	Vaccinium	floribundum
Ericaceae	Vaccinium	furfuraceum
Ericaceae	Vaccinium	poasanum
Ericaceae_	Gaultheria	erecta
Eriocaulaceae	Paepalanthus	costaricensis
Eriocaulaceae	Paepalanthus	dendroides
Eriocaulaceae	Paepalanthus	pilosus
Erythroxylaceae	Erythroxylum	macrophyllum
Euphorbiaceae	Acalypha	costaricensis
Euphorbiaceae	Acalypha	diversifolia
Euphorbiaceae	Acalypha	macrostachya
Euphorbiaceae	Adenophaedra	grandifolia
Euphorbiaceae	Alchornea	glandulosa
Euphorbiaceae	Alchornea	latifolia
Euphorbiaceae	Bernardia	macrophylla
Euphorbiaceae	Cleidion	castaneifolium
Euphorbiaceae	Croton	draco
Euphorbiaceae	Croton	niveus
Euphorbiaceae	Croton	schiedeanus
Euphorbiaceae	Dysopsis	glechomoides
Euphorbiaceae	Gymnanthes	riparia
Euphorbiaceae	Hieronyma	oblonga
Euphorbiaceae	Hyeronima	oblonga
Euphorbiaceae	Margaritaria	nobilis
Euphorbiaceae	Phyllanthus	anisolobus
Euphorbiaceae	Phyllanthus	niruri
Euphorbiaceae	Phyllanthus	stipulatus

Euphorbiaceae	Phyllanthus	valerioi
Euphorbiaceae	Ricinus	communis
Euphorbiaceae	Sapium	glandulosum
Euphorbiaceae	Sapium	rigidifolium
Fabaceae/Caes.	Bauhinia	glabra
Fabaceae/Caes.	Caesalpinia	urophylla
Fabaceae/Caes.	Macrolobium	costaricense
Fabaceae/Caes.	Macrolobium	hartshornii
Fabaceae/Caes.	Senna	papillosa
Fabaceae/Mim.	Abarema	idiopoda
Fabaceae/Mim.	Calliandra	trinervia
Fabaceae/Mim.	Cojoba	costaricensis
Fabaceae/Mim.	Cojoba	membranacea
Fabaceae/Mim.	Cojoba	rufescens
Fabaceae/Mim.	Cojoba	undulatomarginata
Fabaceae/Mim.	Cojoba	valerioi
Fabaceae/Mim.	Inga	barbourii
Fabaceae/Mim.	Inga	exalata
Fabaceae/Mim.	Inga	jinicuil
Fabaceae/Mim.	Inga	latipes
Fabaceae/Mim.	Inga	leonis
Fabaceae/Mim.	Inga	longispica
Fabaceae/Mim.	Inga	marginata
Fabaceae/Mim.	Inga	micheliana
Fabaceae/Mim.	Inga	mortoniana
Fabaceae/Mim.	Inga	oerstediana
Fabaceae/Mim.	Inga	pezizifera
Fabaceae/Mim.	Inga	punctata
Fabaceae/Mim.	Inga	sp.B
Fabaceae/Mim.	Inga	tonduzii
Fabaceae/Mim.	Zapoteca	tetragona
Fabaceae/Pap.	Canavalia	oxyphylla
Fabaceae/Pap.	Centrosema	plumieri
Fabaceae/Pap.	Crotalaria	sagittalis
Fabaceae/Pap.	Desmodium	adscendens
Fabaceae/Pap.	Desmodium	axillare
Fabaceae/Pap.	Desmodium	caripense
Fabaceae/Pap.	Desmodium	intortum
Fabaceae/Pap.	Desmodium	procumbens
Fabaceae/Pap.	Desmodium	purpusii
Fabaceae/Pap.	Erythrina	berteroana
Fabaceae/Pap.	Erythrina	chiriquensis
Fabaceae/Pap.	Erythrina	costaricensis
Fabaceae/Pap.	Erythrina	gibbosa
Fabaceae/Pap.	Machaerium	seemannii
Fabaceae/Pap.	Mucuna	holtonii
Fabaceae/Pap.	Phaseolus	talamancensis
Fabaceae/Pap.	Phaseolus	tuerckheimii
Fabaceae/Pap.	Phaseolus	vulgaris
Fabaceae/Pap.	Rhynchosia	quercetorum
Fabaceae/Pap.	Stylosanthes	guianensis
Fabaceae/Pap.	Swartzia	simplex
Fabaceae/Pap.	Teramnus	uncinatus
Fabaceae/Pap.	Trifolium	repens
Fabaceae/Pap.	Vigna	candida
Fagaceae	Quercus	benthamii
Fagaceae	Quercus	bumelioides
Fagaceae	Quercus	corrugata
Fagaceae	Quercus	costaricensis
Fagaceae	Quercus	insignis
Fagaceae	Quercus	sapotifolia
Fagaceae	Quercus	seemannii
Flacourtiaceae	Banara	guianensis
Flacourtiaceae	Carpotroche	platyptera
Flacourtiaceae	Casearia	standleyana
Flacourtiaceae	Casearia	tacanensis
Flacourtiaceae	Hasseltia	floribunda
Flacourtiaceae	Hasseltia	guatemalensis
Flacourtiaceae	Laetia	thamnia
Flacourtiaceae	Lunania	mexicana
Flacourtiaceae	Macrohasseltia	macroterantha
Flacourtiaceae	Pleuranthodendr	lindenii
Flacourtiaceae	Xylosma	chlorantha
Flacourtiaceae	Xylosma	oligandra
Garryaceae	Garrya	laurifolia
Gentianaceae	Curtia	tenella
Gentianaceae	Gentiana	sedifolia
Gentianaceae	Halenia	aquilegiella
Gentianaceae	Halenia	euryphylla
Gentianaceae	Halenia	rhyacophila
Gentianaceae	Irlbachia	alata
Gentianaceae	Macrocarpaea	browallioides
Gentianaceae	Macrocarpaea	subcaudata
Gentianaceae	Symbolanthus	pulcherrimus
Gentianaceae	Voyria	aphylla
Geraniaceae	Geranium	costaricense
Gesneriaceae	Alloplectus	ichthyoderma
Gesneriaceae	Alloplectus	medusaeus
Gesneriaceae	Alloplectus	panamensis
Gesneriaceae	Alloplectus	tetragonus
Gesneriaceae	Besleria	barbensis
Gesneriaceae	Besleria	formicaria
Gesneriaceae	Besleria	formosa
Gesneriaceae	Besleria	laxiflora
Gesneriaceae	Besleria	notabilis
Gesneriaceae	Besleria	princeps
Gesneriaceae	Besleria	solanoides
Gesneriaceae	Besleria	trichostegia
Gesneriaceae	Besleria	triflora
Gesneriaceae	Codonanthe	uleana
Gesneriaceae	Columnea	anisophylla
Gesneriaceae	Columnea	chiricana
Gesneriaceae	Columnea	consanguinea
Gesneriaceae	Columnea	gloriosa
Gesneriaceae	Columnea	grata
Gesneriaceae	Columnea	incarnata
Gesneriaceae	Columnea	lariensis
Gesneriaceae	Columnea	magnifica
Gesneriaceae	Columnea	microcalyx
Gesneriaceae	Columnea	nervosa

Gesneriaceae	Columnea	nicaraguensis
Gesneriaceae	Columnea	oerstediana
Gesneriaceae	Columnea	oxyphylla
Gesneriaceae	Columnea	parviflora
Gesneriaceae	Columnea	purpurata
Gesneriaceae	Columnea	querceti
Gesneriaceae	Columnea	sanguinolenta
Gesneriaceae	Columnea	verecunda
Gesneriaceae	Cremosperma	maculatum
Gesneriaceae	Cremosperma	occidentale
Gesneriaceae	Diastema	affine
Gesneriaceae	Diastema	racemiferum
Gesneriaceae	Drymonia	conchocalyx
Gesneriaceae	Drymonia	fimbriata
Gesneriaceae	Drymonia	folsomii
Gesneriaceae	Drymonia	lanceolata
Gesneriaceae	Drymonia	macrantha
Gesneriaceae	Drymonia	macrophylla
Gesneriaceae	Drymonia	multiflora
Gesneriaceae	Drymonia	parviflora
Gesneriaceae	Drymonia	pilifera
Gesneriaceae	Drymonia	rubra
Gesneriaceae	Drymonia	serrulata
Gesneriaceae	Drymonia	submarginalis
Gesneriaceae	Drymonia	tomentulifera
Gesneriaceae	Drymonia	turrialvae
Gesneriaceae	Gasteranthus	delphinioides
Gesneriaceae	Gasteranthus	imbricans
Gesneriaceae	Gasteranthus	wendlandianus
Gesneriaceae	Kohleria	spicata
Gesneriaceae	Kohleria	tigridia
Gesneriaceae	Monopyle	puberula
Gesneriaceae	Moussonia	ampla
Gesneriaceae	Moussonia	deppeana
Gesneriaceae	Moussonia	serrulata
Gesneriaceae	Napeanthus	apodemus
Gesneriaceae	Nautilocalyx	dressleri
Gesneriaceae	Paradrymonia	lineata
Gesneriaceae	Paradrymonia	longipetiolata
Gesneriaceae	Paradrymonia	metamorphophylla
Gesneriaceae	Phinaea	lacerata
Gesneriaceae	Rhynchoglossum	azureum
Gesneriaceae	Rufodorsia	cerricola
Gesneriaceae	Solenophora	calycosa
Grossulariaceae	Escallonia	myrtilloides
Grossulariaceae	Phyllonoma	laticuspis
Grossulariaceae	Phyllonoma	ruscifolia
Grossulariaceae	Phyllonoma	tenuidens
Grossulariaceae	Ribes	costaricensis
Gunneraceae	Gunnera	insignis
Gunneraceae	Gunnera	talamancana
Haemodoraceae	Xiphidium	coeruleum
Hamamelidaceae	Molinadendron	guatemalense
Heliconiaceae	Heliconia	clinophila
Heliconiaceae	Heliconia	colgantea
Heliconiaceae	Heliconia	danielsiana
Heliconiaceae	Heliconia	gracilis
Heliconiaceae	Heliconia	ignescens
Heliconiaceae	Heliconia	imbricata
Heliconiaceae	heliconia	lankesteri
Heliconiaceae	Heliconia	latispatha
Heliconiaceae	Heliconia	lophocarpa
Heliconiaceae	Heliconia	mathiasiae
Heliconiaceae	Heliconia	nutans
Heliconiaceae	Heliconia	pogonantha
Heliconiaceae	Heliconia	tortuosa
Heliconiaceae	Heliconia	trichocarpa
Heliconiaceae	Heliconia	vaginalis
Heliconiaceae	Heliconia	wilsonii
Hippocastanaceae	Billia	rosea
Hippocrateaceae	Peritassa	pruinosa
Hippocrateaceae	Salacia	petenensis
Humiriaceae	Humiriastrum	diguense
Humiriaceae	Sacoglottis	trichogyna
Hydrangeaceae	Hydrangea	asterolasia
Hydrangeaceae	Hydrangea	diplostemona
Hydrangeaceae	Hydrangea	peruviana
Hydrocharitaceae	Najas	guadalupensis
Hydrophyllaceae	Wigandia	urens
Hypericaceae	Hypericum	cardonae
Hypericaceae	Hypericum	costaricense
Hypericaceae	Hypericum	gnidioides
Hypericaceae	Hypericum	irazuense
Hypericaceae	Hypericum	jaramilloi
Hypericaceae	Hypericum	thesiifolium
Hypericaceae	Vismia	baccifera
Hypoxidaceae	Hypoxis	decumbens
Icacinaceae	Calatola	costaricensis
Icacinaceae	Citronella	costaricensis
Iridaceae	Neomarica	variegata
Iridaceae	Orthrosanthus	chimboracensis
Iridaceae	Orthrosanthus	monadelphus
Iridaceae	Sisyrinchium	chiricanum
Iridaceae	Sisyrinchium	subalpinum
Iridaceae	Sisyrinchium	tinctorium
Iridaceae	Sisyrinchium	trinerve
Isoëtaceae	Isoëtes	storkii
Juglandaceae	Alfaroa	costaricensis
Juglandaceae	Alfaroa	williamsii
Juglandaceae	Oreomunnea	mexicana
Juglandaceae	Oreomunnea	pterocarpa
Juncaceae	Juncus	bufonius
Juncaceae	Juncus	liebmannii
Juncaceae	Juncus	microcephalus
Juncaceae	Luzula	denticulata
Lacistemaceae	Lozania	mutisiana
Lamiaceae	Clinopodium	foliolosum
Lamiaceae	Hyptis	brachiata
Lamiaceae	Hyptis	brevipes
Lamiaceae	Hyptis	lantanifolia

Lamiaceae	Hyptis	obtusiflora
Lamiaceae	Hyptis	sinuata
Lamiaceae	Hyptis	vilis
Lamiaceae	Lepechinia	schiedeana
Lamiaceae	Salvia	alvajaca
Lamiaceae	Salvia	carnea
Lamiaceae	Salvia	pteroura
Lamiaceae	Scutellaria	costaricana
Lamiaceae	Scutellaria	glabra
Lamiaceae	Scutellaria	hookeri
Lamiaceae	Scutellaria	isocheila
Lamiaceae	Scutellaria	tenuipetiolata
Lamiaceae	Stachys	costaricensis
Lamiaceae	Stachys	pittieri
Lamiaceae	Stachys	riparia
Lamiaceae	Stachys	uniflora
Lauraceae	Aiouea	costaricensis
Lauraceae	Aiouea	talamancensis
Lauraceae	Beilschmiedia	alloiophylla
Lauraceae	Beilschmiedia	costaricensis
Lauraceae	Beilschmiedia	tovarensis
Lauraceae	Cinnamomum	brenesii
Lauraceae	Cinnamomum	costaricanum
Lauraceae	Cinnamomum	hammelianum
Lauraceae	Cinnamomum	tonduzii
Lauraceae	Cinnamomum	triplinerve
Lauraceae	Nectandra	cufodontisii
Lauraceae	Nectandra	membranacea
Lauraceae	Nectandra	purpurea
Lauraceae	Nectandra	reticulata
Lauraceae	Nectandra	salicina
Lauraceae	Nectandra	smithii
Lauraceae	Nectandra	umbrosa
Lauraceae	Ocotea	atirrensis
Lauraceae	Ocotea	austinii
Lauraceae	Ocotea	dendrodaphne
Lauraceae	Ocotea	dentata
Lauraceae	Ocotea	endresiana
Lauraceae	Ocotea	fulvescens
Lauraceae	Ocotea	glaucosericea
Lauraceae	Ocotea	gomezii
Lauraceae	Ocotea	gordonii
Lauraceae	Ocotea	guatemalensis
Lauraceae	Ocotea	haberi
Lauraceae	Ocotea	holdridgeiana
Lauraceae	Ocotea	insularis
Lauraceae	Ocotea	laetevirens
Lauraceae	Ocotea	lentii
Lauraceae	Ocotea	leucoxylon
Lauraceae	Ocotea	mollicella
Lauraceae	Ocotea	oblonga
Lauraceae	Ocotea	patula
Lauraceae	Ocotea	pentagona
Lauraceae	Ocotea	praetermissa
Lauraceae	Ocotea	pseudopalmana
Lauraceae	Ocotea	rufescens
Lauraceae	Ocotea	stenoneura
Lauraceae	Ocotea	tenera
Lauraceae	Ocotea	tonduzii
Lauraceae	Ocotea	valerioana
Lauraceae	Ocotea	viridiflora
Lauraceae	Ocotea	whitei
Lauraceae	Persea	americana
Lauraceae	Persea	cuneata
Lauraceae	Persea	donnell-smithii
Lauraceae	Persea	obtusifolia
Lauraceae	Persea	rigens
Lauraceae	Persea	schiedeana
Lauraceae	Pleurothyrium	palmanum
Lemnaceae	Lemna	valdiviana
Lemnaceae	Spirodela	polyrhiza
Lentibulariaceae	Utricularia	amethystina
Lentibulariaceae	Utricularia	jamesoniana
Lentibulariaceae	Utricularia	praetermissa
Lentibulariaceae	Utricularia	unifolia
Loasaceae	Klaprothia	mentzelioides
Loasaceae	Nasa	speciosa
Loasaceae	Nasa	triphylla
Loganiaceae	Desfontainia	splendens
Loganiaceae	Spigelia	humboldtiana
Loranthaceae	Gaiadendron	punctatum
Loranthaceae	Oryctanthus	occidentalis
Loranthaceae	Oryctanthus	spicatus
Loranthaceae	Panamanthus	panamensis
Loranthaceae	Psittacanthus	rhynchanthus
Loranthaceae	Psittacanthus	scheryi
Loranthaceae	Psittacanthus	schiedeanus
Loranthaceae	Struthanthus	burgeri
Loranthaceae	Struthanthus	cansjerifolius
Loranthaceae	Struthanthus	hartwegii
Loranthaceae	Struthanthus	leptostachyus
Loranthaceae	Struthanthus	quercicola
Lycopodiaceae	Huperzia	capillaris
Lycopodiaceae	Huperzia	chiricana
Lycopodiaceae	Huperzia	crassa
Lycopodiaceae	Huperzia	cuneifolia
Lycopodiaceae	Huperzia	dichaeoides
Lycopodiaceae	Huperzia	funiformis
Lycopodiaceae	Huperzia	hippuridea
Lycopodiaceae	Huperzia	hoffmannii
Lycopodiaceae	Huperzia	homocarpa
Lycopodiaceae	Huperzia	reflexa
Lycopodiaceae	Huperzia	subulata
Lycopodiaceae	Huperzia	talamancana
Lycopodiaceae	Huperzia	taxifolia
Lycopodiaceae	Huperzia	watsoniana
Lycopodiaceae	Huperzia	wilsonii
Lycopodiaceae	Lycopodiella	cernua
Lycopodiaceae	Lycopodiella	glaucescens
Lycopodiaceae	Lycopodiella	pendulina

Lycopodiaceae	Lycopodiella	riofrioi
Lycopodiaceae	Lycopodiella	steyermarkii
Lycopodiaceae	Lycopodium	clavatum
Lycopodiaceae	Lycopodium	jussiaei
Lycopodiaceae	Lycopodium	thyoides
Lythraceae	Cuphea	appendiculata
Lythraceae	Cuphea	carthagenensis
Lythraceae	cuphea	epilobiifolia
Magnoliaceae	Magnolia	panamensis
Magnoliaceae	Magnolia	poasana
Magnoliaceae	Magnolia	sororum
Magnoliaceae	Talauma	gloriensis
Malpighiaceae	Bunchosia	costaricensis
Malpighiaceae	Bunchosia	macrophylla
Malpighiaceae	Bunchosia	polystachia
Malpighiaceae	Bunchosia	ternata
Malpighiaceae	Byrsonima	arthropoda
Malpighiaceae	Byrsonima	crassifolia
Malpighiaceae	Byrsonima	herrerae
Malpighiaceae	Heteropterys	panamensis
Malpighiaceae	Hiraea	fagifolia
Malpighiaceae	Hiraea	smilacina
Malvaceae	Hampea	appendiculata
Malvaceae	Malvaviscus	achanioides
Malvaceae	Malvaviscus	arboreus
Malvaceae	Malvaviscus	concinnus
Malvaceae	Pavonia	castaneifolia
Malvaceae	Pavonia	penduliflora
Malvaceae	Pavonia	peruviana
Malvaceae	Pavonia	schiedeana
Malvaceae	Sida	linifolia
Malvaceae	Sida	rhombifolia
Malvaceae	Wercklea	woodsonii
Marantaceae	Calathea	brenesii
Marantaceae	Calathea	crotalifera
Marantaceae	Calathea	donnell-smithii
Marantaceae	Calathea	foliosa
Marantaceae	Calathea	guzmanioides
Marantaceae	Calathea	indecora
Marantaceae	Calathea	lasiostachya
Marantaceae	Calathea	leucostachys
Marantaceae	Calathea	marantifolia
Marantaceae	Calathea	silvicola
Marantaceae	Calathea	spiralis
Marantaceae	Calathea	trichoneura
Marantaceae	Ctenanthe	dasycarpa
Marantaceae	Ischnosiphon	inflatus
Marantaceae	Pleiostachya	leiostachya
Marantaceae	Stromanthe	tonckat
Marcgraviaceae	Marcgravia	brownei
Marcgraviaceae	Marcgravia	caudata
Marcgraviaceae	Marcgravia	mexicana
Marcgraviaceae	Marcgravia	nepenthoides
Marcgraviaceae	Marcgravia	roonii
Marcgraviaceae	Marcgravia	schippii
Marcgraviaceae	Marcgravia	serrae
Marcgraviaceae	Marcgraviastrum	subsessile
Marcgraviaceae	Schwartzia	costaricensis
Melastomataceae	Aciotis	rubricaulis
Melastomataceae	Adelobotrys	adscendens
Melastomataceae	Axinaea	costaricensis
Melastomataceae	Bellucia	pentamera
Melastomataceae	Blakea	anomala
Melastomataceae	Blakea	calycosa
Melastomataceae	Blakea	costaricensis
Melastomataceae	Blakea	elliptica
Melastomataceae	Blakea	gracilis
Melastomataceae	Blakea	grandiflora
Melastomataceae	Blakea	guatemalensis
Melastomataceae	Blakea	pauciflora
Melastomataceae	Blakea	penduliflora
Melastomataceae	Blakea	storkii
Melastomataceae	Blakea	tuberculata
Melastomataceae	Blakea	wilsoniorum
Melastomataceae	Centradenia	grandifolia
Melastomataceae	Centradenia	inaequilateralis
Melastomataceae	Chaetolepis	cufodontisii
Melastomataceae	Clidemia	biolleyana
Melastomataceae	Clidemia	clandestina
Melastomataceae	Clidemia	coloradensis
Melastomataceae	Clidemia	coronata
Melastomataceae	Clidemia	costaricensis
Melastomataceae	Clidemia	davidsei
Melastomataceae	Clidemia	densiflora
Melastomataceae	Clidemia	dentata
Melastomataceae	Clidemia	discolor
Melastomataceae	Clidemia	epiphytica
Melastomataceae	Clidemia	evanescens
Melastomataceae	Clidemia	globuliflora
Melastomataceae	Clidemia	gracilis
Melastomataceae	Clidemia	hammelii
Melastomataceae	Clidemia	lanuginosa
Melastomataceae	Clidemia	ombrophila
Melastomataceae	Clidemia	pubescens
Melastomataceae	Clidemia	radicans
Melastomataceae	Clidemia	reitziana
Melastomataceae	Clidemia	septuplinervia
Melastomataceae	Clidemia	sericea
Melastomataceae	Clidemia	sessiliflora
Melastomataceae	Clidemia	setosa
Melastomataceae	Clidemia	spectabilis
Melastomataceae	Clidemia	subpeltata
Melastomataceae	Clidemia	tenebrosa
Melastomataceae	Clidemia	tetrapetala
Melastomataceae	Clidemia	utleyana
Melastomataceae	Conostegia	bigibbosa
Melastomataceae	Conostegia	chiriquensis
Melastomataceae	Conostegia	icosandra
Melastomataceae	Conostegia	lasiopoda
Melastomataceae	Conostegia	micrantha

Melastomataceae	Conostegia	montana
Melastomataceae	Conostegia	oerstediana
Melastomataceae	Conostegia	pittieri
Melastomataceae	Conostegia	rhodopetala
Melastomataceae	Conostegia	setifera
Melastomataceae	Conostegia	setosa
Melastomataceae	Conostegia	volcanalis
Melastomataceae	Conostegia	vulcanicola
Melastomataceae	Conostegia	xalapensis
Melastomataceae	Graffenrieda	sp.A
Melastomataceae	Henriettella	trachyphylla
Melastomataceae	Henriettella	tuberculosa
Melastomataceae	Leandra	dichotoma
Melastomataceae	Leandra	grandifolia
Melastomataceae	Leandra	melanodesma
Melastomataceae	Leandra	subseriata
Melastomataceae	Leandra	subulata
Melastomataceae	Meriania	grandiflora
Melastomataceae	Meriania	macrophylla
Melastomataceae	Meriania	odorata
Melastomataceae	Meriania	panamensis
Melastomataceae	Meriania	phlomoides
Melastomataceae	Miconia	albicans
Melastomataceae	Miconia	amplinodis
Melastomataceae	Miconia	arboricola
Melastomataceae	Miconia	astroplocama
Melastomataceae	Miconia	benthamiana
Melastomataceae	Miconia	biperulifera
Melastomataceae	Miconia	brenesii
Melastomataceae	Miconia	brevitheca
Melastomataceae	Miconia	calvescens
Melastomataceae	Miconia	carnea
Melastomataceae	Miconia	chionophila
Melastomataceae	Miconia	chiriquiensis
Melastomataceae	Miconia	colliculosa
Melastomataceae	Miconia	coriacea
Melastomataceae	Miconia	costaricensis
Melastomataceae	Miconia	cremadena
Melastomataceae	Miconia	cuspidatissima
Melastomataceae	Miconia	danielii
Melastomataceae	Miconia	dodecandra
Melastomataceae	Miconia	dolichopoda
Melastomataceae	Miconia	donaeana
Melastomataceae	Miconia	friedmaniorum
Melastomataceae	Miconia	gracilis
Melastomataceae	Miconia	ligulata
Melastomataceae	Miconia	livida
Melastomataceae	Miconia	lonchophylla
Melastomataceae	Miconia	longibracteata
Melastomataceae	Miconia	loreyoides
Melastomataceae	Miconia	melanotricha
Melastomataceae	Miconia	minutiflora
Melastomataceae	Miconia	multiplinervia
Melastomataceae	Miconia	multispicata
Melastomataceae	Miconia	nutans
Melastomataceae	Miconia	pendula
Melastomataceae	Miconia	pittieri
Melastomataceae	Miconia	prasina
Melastomataceae	Miconia	reducens
Melastomataceae	Miconia	schnellii
Melastomataceae	Miconia	smaragdina
Melastomataceae	Miconia	stipularis
Melastomataceae	Miconia	talamancensis
Melastomataceae	Miconia	theizans
Melastomataceae	Miconia	tonduzii
Melastomataceae	Miconia	trinervia
Melastomataceae	Miconia	valerioana
Melastomataceae	Monochaetum	amistadense
Melastomataceae	Monochaetum	cordatum
Melastomataceae	Monochaetum	exaltatum
Melastomataceae	Monochaetum	floribundum
Melastomataceae	Monochaetum	neglectum
Melastomataceae	Monochaetum	trichophyllum
Melastomataceae	Monochaetum	vestitum
Melastomataceae	Mouriri	cyphocarpa
Melastomataceae	Mouriri	exilis
Melastomataceae	Ossaea	asplundii
Melastomataceae	Ossaea	brenesii
Melastomataceae	Ossaea	micrantha
Melastomataceae	Ossaea	quadrisulca
Melastomataceae	Ossaea	robusta
Melastomataceae	Pilocosta	oerstedii
Melastomataceae	Tibouchina	heteromalla
Melastomataceae	Tibouchina	urvilleana
Melastomataceae	Tococa	guianensis
Melastomataceae	Tococa	platyphylla
Melastomataceae	Topobea	amplifolia
Melastomataceae	Topobea	arboricola
Melastomataceae	Topobea	dimorphophylla
Melastomataceae	Topobea	gerardoana
Melastomataceae	Topobea	intricata
Melastomataceae	Topobea	maurofernandeziana
Melastomataceae	Topobea	multiflora
Melastomataceae	Topobea	pittieri
Melastomataceae	Topobea	watsonii
Melastomataceae	Triolena	hirsuta
Meliaceae	Cedrela	tonduzii
Meliaceae	Guarea	adenophylla
Meliaceae	Guarea	kegelii
Meliaceae	Guarea	kunthiana
Meliaceae	Guarea	macrocalyx
Meliaceae	Guarea	microcarpa
Meliaceae	Guarea	pilosa
Meliaceae	Guarea	rhopalocarpa
Meliaceae	Ruagea	glabra
Meliaceae	Trichilia	havanensis
Meliaceae	Trichilia	martiana
Menispermaceae	Abuta	panamensis
Menispermaceae	Anomospermum	reticulatum
Menispermaceae	Cissampelos	andromorpha

Menispermaceae	Cissampelos	pareira
Menispermaceae	Cissampelos	tropaeolifolia
Menispermaceae	Hyperbaena	smilacina
Monimiaceae	Mollinedia	costaricensis
Monimiaceae	Mollinedia	viridiflora
Moraceae	Clarisia	biflora
Moraceae	Dorstenia	choconiana
Moraceae	Dorstenia	contrajerva
Moraceae	Ficus	americana
Moraceae	Ficus	cahuitensis
Moraceae	Ficus	cervantesiana
Moraceae	Ficus	citrifolia
Moraceae	Ficus	crassiuscula
Moraceae	Ficus	crassivenosa
Moraceae	Ficus	macbridei
Moraceae	Ficus	obtusifolia
Moraceae	Ficus	pertusa
Moraceae	Ficus	schippii
Moraceae	Ficus	tonduzii
Moraceae	Ficus	tuerckheimii
Moraceae	Ficus	velutina
Moraceae	Helicostylis	tovarensis
Moraceae	Morus	alba
Moraceae	Naucleopsis	capirensis
Moraceae	Naucleopsis	naga
Moraceae	Naucleopsis	ulei
Moraceae	Perebea	hispidula
Moraceae	Poulsenia	armata
Moraceae	Pseudolmedia	mollis
Moraceae	Sorocea	pubivena
Moraceae	Sorocea	trophoides
Moraceae	Trophis	mexicana
Myricaceae	Morella	pubescens
Myristicaceae	Compsoneura	mexicana
Myristicaceae	Otoba	novogranatensis
Myristicaceae	Virola	guatemalensis
Myrsinaceae	Ardisia	blepharodes
Myrsinaceae	Ardisia	capitellata
Myrsinaceae	Ardisia	cartagoana
Myrsinaceae	Ardisia	chiriquiensis
Myrsinaceae	Ardisia	compressa
Myrsinaceae	Ardisia	crassipes
Myrsinaceae	Ardisia	glandulosomarginat
Myrsinaceae	Ardisia	guianensis
Myrsinaceae	Ardisia	nigropunctata
Myrsinaceae	Ardisia	opegrapha
Myrsinaceae	Ardisia	palmana
Myrsinaceae	Ardisia	panamensis
Myrsinaceae	Ardisia	pleurobotrya
Myrsinaceae	Ardisia	quadrata
Myrsinaceae	Ardisia	standleyana
Myrsinaceae	Ardisia	subsessilifolia
Myrsinaceae	Ardisia	tarariae
Myrsinaceae	Cybianthus	costaricanus
Myrsinaceae	Cybianthus	pastensis
Myrsinaceae	Cybianthus	schlimii
Myrsinaceae	Gentlea	austin-smithii
Myrsinaceae	Gentlea	venosissima
Myrsinaceae	Hymenandra	pittieri
Myrsinaceae	Myrsine	coriacea
Myrsinaceae	Myrsine	dependens
Myrsinaceae	Myrsine	juergensenii
Myrsinaceae	Myrsine	pellucido-punctata
Myrsinaceae	Parathesis	cartagoana
Myrsinaceae	Parathesis	crassiramea
Myrsinaceae	Parathesis	glabra
Myrsinaceae	Parathesis	glendae
Myrsinaceae	Parathesis	kallunkiae
Myrtaceae	Eugenia	austin-smithii
Myrtaceae	Eugenia	basilaris
Myrtaceae	Eugenia	glandulosopunctata
Myrtaceae	Eugenia	gomezii
Myrtaceae	Eugenia	grayumii
Myrtaceae	Eugenia	hartshornii
Myrtaceae	Eugenia	mcphersonii
Myrtaceae	Eugenia	oerstediana
Myrtaceae	Eugenia	sarapiquensis
Myrtaceae	Myrcia	splendens
Myrtaceae	Myrcianthes	storkii
Myrtaceae	Plinia	salticola
Myrtaceae	Ugni	myricoides
Nyctaginaceae	Neea	amplifolia
Nyctaginaceae	Neea	laetevirens
Nyctaginaceae	Neea	orosiana
Nyctaginaceae	Neea	pittieri
Nyctaginaceae	Neea	psychotrioides
Nyctaginaceae	Neea	urophylla
Ochnaceae	Sauvagesia	erecta
Olacaceae	Heisteria	costaricensis
Olacaceae	Heisteria	macrophylla
Olacaceae	Heisteria	povedae
Olacaceae	Heisteria	scandens
Onagraceae	Fuchsia	jimenezii
Onagraceae	Fuchsia	microphylla
Onagraceae	Fuchsia	paniculata
Onagraceae	Fuchsia	splendens
Onagraceae	Ludwigia	foliobracteolata
Onagraceae	Oenothera	elata
Orchidaceae	Acinopetala	livingstoneana
Orchidaceae	Acrorchis	roseola
Orchidaceae	Barbosella	geminata
Orchidaceae	Bletia	campanulata
Orchidaceae	Brachionidium	calypso
Orchidaceae	Brachionidium	cruziae
Orchidaceae	Brachionidium	dentatum
Orchidaceae	Brachionidium	dressleri
Orchidaceae	Brachionidium	lucanoideum
Orchidaceae	Brachionidium	polypodium
Orchidaceae	Brachionidium	satyreum
Orchidaceae	Calanthe	calanthoides

Orchidaceae	Cischweinfia	dasyandra
Orchidaceae	Coccineorchis	bracteosa
Orchidaceae	Coccineorchis	cernua
Orchidaceae	Coccineorchis	standleyi
Orchidaceae	Cochleanthes	aromatica
Orchidaceae	Cranichis	lankesteri
Orchidaceae	Cranichis	reticulata
Orchidaceae	Cranichis	talamancana
Orchidaceae	Crossoglossa	blephariglottis
Orchidaceae	Dichaea	ciliolata
Orchidaceae	Dichaea	cryptarrhena
Orchidaceae	Dichaea	eligulata
Orchidaceae	Dichaea	oxyglossa
Orchidaceae	Dichaea	trulla
Orchidaceae	Dracula	erythrochaete
Orchidaceae	Dracula	ripleyana
Orchidaceae	Elleanthus	aurantiacus
Orchidaceae	Elleanthus	cynarocephalus
Orchidaceae	Elleanthus	glaucophyllus
Orchidaceae	Elleanthus	graminifolius
Orchidaceae	Elleanthus	hymenophorus
Orchidaceae	Elleanthus	tonduzii
Orchidaceae	Elleanthus	tricallosus
Orchidaceae	Elleanthus	wercklei
Orchidaceae	Epidendrum	acrostigma
Orchidaceae	Epidendrum	adnatum
Orchidaceae	Epidendrum	alfaroi
Orchidaceae	Epidendrum	anoglossoides
Orchidaceae	Epidendrum	anoglossum
Orchidaceae	Epidendrum	atrorugosum
Orchidaceae	Epidendrum	barbae
Orchidaceae	Epidendrum	cardiochilum
Orchidaceae	Epidendrum	chirripoënse
Orchidaceae	Epidendrum	confertum
Orchidaceae	Epidendrum	davidsei
Orchidaceae	Epidendrum	erythrostigma
Orchidaceae	Epidendrum	flexicaule
Orchidaceae	Epidendrum	horichii
Orchidaceae	Epidendrum	kerichilum
Orchidaceae	Epidendrum	lacustre
Orchidaceae	Epidendrum	lagenocolumna
Orchidaceae	Epidendrum	lutheri
Orchidaceae	Epidendrum	microdendron
Orchidaceae	Epidendrum	miserrimum
Orchidaceae	Epidendrum	mora-retanae
Orchidaceae	Epidendrum	muscicola
Orchidaceae	Epidendrum	myodes
Orchidaceae	Epidendrum	nocturnum
Orchidaceae	Epidendrum	notabile
Orchidaceae	Epidendrum	obliquifolium
Orchidaceae	Epidendrum	oxyglossum
Orchidaceae	Epidendrum	pachytepalum
Orchidaceae	Epidendrum	paucifolium
Orchidaceae	Epidendrum	penneystigma
Orchidaceae	Epidendrum	pergameneum
Orchidaceae	Epidendrum	philowercklei
Orchidaceae	Epidendrum	piliferum
Orchidaceae	Epidendrum	platystigma
Orchidaceae	Epidendrum	pleurothalloides
Orchidaceae	Epidendrum	polychlamys
Orchidaceae	Epidendrum	probiflorum
Orchidaceae	Epidendrum	radicans
Orchidaceae	Epidendrum	repens
Orchidaceae	Epidendrum	rugosum
Orchidaceae	Epidendrum	sanchoi
Orchidaceae	Epidendrum	simulacrum
Orchidaceae	Epidendrum	stolidium
Orchidaceae	Epidendrum	subnutans
Orchidaceae	Epidendrum	talamancanum
Orchidaceae	Epidendrum	turialvae
Orchidaceae	Erythrodes	utriculata
Orchidaceae	Gomphichis	adnata
Orchidaceae	Goodyera	ovatilabia
Orchidaceae	Govenia	liliacea
Orchidaceae	Habenaria	distans
Orchidaceae	Habenaria	heptadactyla
Orchidaceae	Lepanthes	chameleon
Orchidaceae	Lepanthes	davidsei
Orchidaceae	Lepanthes	disticha
Orchidaceae	Lepanthes	elata
Orchidaceae	Lepanthes	empis
Orchidaceae	Lepanthes	erinacea
Orchidaceae	Lepanthes	horichii
Orchidaceae	Lepanthes	horrida
Orchidaceae	Lepanthes	infundibulum
Orchidaceae	Lepanthes	lindleyana
Orchidaceae	Lepanthes	mariposa
Orchidaceae	Lepanthes	psyche
Orchidaceae	Lepanthes	setos
Orchidaceae	Lepanthes	trichidion
Orchidaceae	Lepanthes	valerioi
Orchidaceae	Lepanthes	wendlandii
Orchidaceae	Liparis	arnoglossophylla
Orchidaceae	Lockhartia	amoena
Orchidaceae	Lycaste	leucantha
Orchidaceae	Malaxis	hastilabia
Orchidaceae	Malaxis	tonduzii
Orchidaceae	Masdevallia	maduroi
Orchidaceae	Masdevallia	nidifica
Orchidaceae	Masdevallia	rafaeliana
Orchidaceae	Masdevallia	utriculata
Orchidaceae	Maxillaria	adolphi
Orchidaceae	Maxillaria	amabilis
Orchidaceae	Maxillaria	ampliflora
Orchidaceae	Maxillaria	biolleyi
Orchidaceae	Maxillaria	bracteata
Orchidaceae	Maxillaria	bradeorum
Orchidaceae	Maxillaria	brevilabia
Orchidaceae	Maxillaria	concavilabia
Orchidaceae	Maxillaria	confusa

Orchidaceae	Maxillaria	falcata
Orchidaceae	Maxillaria	fulgens
Orchidaceae	Maxillaria	gomeziana
Orchidaceae	Maxillaria	horichii
Orchidaceae	Maxillaria	microphyton
Orchidaceae	Maxillaria	obscura
Orchidaceae	Maxillaria	paleata
Orchidaceae	Maxillaria	parvilabia
Orchidaceae	Maxillaria	pseudoneglecta
Orchidaceae	Maxillaria	quadrata
Orchidaceae	Maxillaria	schlechteriana
Orchidaceae	Maxillaria	synsepala
Orchidaceae	Maxillaria	tigrina
Orchidaceae	Maxillaria	tricarinata
Orchidaceae	Maxillaria	tuberculatis
Orchidaceae	Maxillaria	umbratilis
Orchidaceae	Maxillaria	vaginalis
Orchidaceae	Microchilus	killipii
Orchidaceae	Myoxanthus	colothrix
Orchidaceae	Nidema	boothii
Orchidaceae	Oerstedela	endresii
Orchidaceae	Oerstedela	exasperata
Orchidaceae	Oerstedela	tetraceros
Orchidaceae	Oncidium	bryolophotum
Orchidaceae	Oncidium	cheirophorum
Orchidaceae	Oncidium	crista-galli
Orchidaceae	Oncidium	globuliferum
Orchidaceae	Oncidium	klotzschianum
Orchidaceae	Oncidium	maduroi
Orchidaceae	Oncidium	panduriforme
Orchidaceae	Oncidium	stenotis
Orchidaceae	Oncidium	warscewiczii
Orchidaceae	Ornithocephalus	bicornis
Orchidaceae	Otoglossum	chiriquense
Orchidaceae	Pachyphyllum	costaricense
Orchidaceae	Pachyphyllum	crystallinum
Orchidaceae	Pachyphyllum	hispidulum
Orchidaceae	Palmorchis	trilobulata
Orchidaceae	Platystele	compacta
Orchidaceae	Platystele	oxyglossa
Orchidaceae	Pleurothallis	angusta
Orchidaceae	Pleurothallis	aspasicensis
Orchidaceae	Pleurothallis	cardiothallis
Orchidaceae	Pleurothallis	colossus
Orchidaceae	Pleurothallis	conochila
Orchidaceae	Pleurothallis	cordifolia
Orchidaceae	Pleurothallis	dolichopus
Orchidaceae	Pleurothallis	endotrachys
Orchidaceae	Pleurothallis	floribunda
Orchidaceae	Pleurothallis	gelida
Orchidaceae	Pleurothallis	instar
Orchidaceae	Pleurothallis	leucantha
Orchidaceae	Pleurothallis	longipedicellata
Orchidaceae	Pleurothallis	macrantha
Orchidaceae	Pleurothallis	nitida
Orchidaceae	Pleurothallis	papillifera
Orchidaceae	Pleurothallis	peculiaris
Orchidaceae	Pleurothallis	phyllocardia
Orchidaceae	Pleurothallis	rhodoglossa
Orchidaceae	Pleurothallis	rowleei
Orchidaceae	Pleurothallis	ruscifolia
Orchidaceae	Pleurothallis	segoviensis
Orchidaceae	Pleurothallis	sicaria
Orchidaceae	Pleurothallis	tonduzii
Orchidaceae	Pleurothallis	uncinata
Orchidaceae	Pleurothallis	volcanica
Orchidaceae	Polystachya	masayensis
Orchidaceae	Ponthieva	brenesii
Orchidaceae	Ponthieva	formosa
Orchidaceae	Prescottia	stachyodes
Orchidaceae	Prosthechea	brassavolae
Orchidaceae	Prosthechea	ochracea
Orchidaceae	Prosthechea	pseudopygmaea
Orchidaceae	Prosthechea	vespa
Orchidaceae	Pseudocentrum	hoffmannii
Orchidaceae	Psilochilus	sp.A
Orchidaceae	Pterichis	galeata
Orchidaceae	Pterichis	habenarioides
Orchidaceae	Scaphosepalum	microdactylum
Orchidaceae	Scaphyglottis	acostae
Orchidaceae	Scaphyglottis	corallorrhiza
Orchidaceae	Scaphyglottis	sigmoidea
Orchidaceae	Sigmatostalix	picta
Orchidaceae	Sobralia	amabilis
Orchidaceae	Sobralia	leucoxantha
Orchidaceae	Sobralia	warscewiczii
Orchidaceae	Solenocentrum	costaricense
Orchidaceae	Stanhopea	ecornuta
Orchidaceae	Stelis	montana
Orchidaceae	Stelis	morganii
Orchidaceae	Stelis	parvula
Orchidaceae	Stelis	spathulata
Orchidaceae	Stelis	superbiens
Orchidaceae	Stelis	tonduziana
Orchidaceae	Stellilabium	distantiflorum
Orchidaceae	Telipogon	costaricensis
Orchidaceae	Telipogon	gracilipes
Orchidaceae	Telipogon	leila-alexandrae
Orchidaceae	Telipogon	storkii
Orchidaceae	Ticoglossum	krameri
Orchidaceae	Ticoglossum	oerstedii
Orchidaceae	Trichopilia	marginata
Orchidaceae	Trichopilia	olmosii
Orchidaceae	Trichosalpinx	arbuscula
Orchidaceae	Trichosalpinx	cedralensis
Orchidaceae	Trichosalpinx	memor
Orchidaceae	Trichosalpinx	pusilla
Orchidaceae	Warczewiczella	discolor
Orchidaceae	Xylobium	elongatum
Orobanchaceae	Conopholis	alpina

Oxalidaceae	Oxalis	filiformis
Oxalidaceae	Oxalis	rhombifolia
Oxalidaceae	Oxalis	spiralis
Papaveraceae	Bocconia	frutescens
Passifloraceae	Passiflora	apetala
Passifloraceae	Passiflora	biflora
Passifloraceae	Passiflora	brevifila
Passifloraceae	Passiflora	hahnii
Passifloraceae	Passiflora	lancearia
Passifloraceae	Passiflora	ligularis
Passifloraceae	Passiflora	lobata
Passifloraceae	Passiflora	membranacea
Passifloraceae	Passiflora	sexflora
Passifloraceae	Passiflora	talamancensis
Passifloraceae	Passiflora	tica
Passifloraceae	Passiflora	vitifolia
Phytolaccaceae	Phytolacca	icosandra
Phytolaccaceae	Phytolacca	meziana
Phytolaccaceae	Phytolacca	rivinoides
Phytolaccaceae	Phytolacca	rugosa
Phytolaccaceae	Trichostigma	polyandrum
Piperaceae	Manekia	naranjoana
Piperaceae	Peperomia	acuminata
Piperaceae	Peperomia	adscendens
Piperaceae	Peperomia	alata
Piperaceae	Peperomia	alpina
Piperaceae	Peperomia	amphitricha
Piperaceae	Peperomia	angularis
Piperaceae	Peperomia	calvicaulis
Piperaceae	Peperomia	choroniana
Piperaceae	Peperomia	cordulatiformis
Piperaceae	Peperomia	crispipetiola
Piperaceae	Peperomia	davidsonii
Piperaceae	Peperomia	dendrophila
Piperaceae	Peperomia	deppeana
Piperaceae	Peperomia	distachya
Piperaceae	Peperomia	donnell-smithii
Piperaceae	Peperomia	dotana
Piperaceae	Peperomia	durandii
Piperaceae	Peperomia	duricaulis
Piperaceae	Peperomia	elata
Piperaceae	Peperomia	esperanzana
Piperaceae	Peperomia	fissispica
Piperaceae	Peperomia	galioides
Piperaceae	Peperomia	geminispica
Piperaceae	Peperomia	hernandiifolia
Piperaceae	Peperomia	heterophylla
Piperaceae	Peperomia	hirta
Piperaceae	Peperomia	hispidula
Piperaceae	Peperomia	hygrophiloides
Piperaceae	Peperomia	jamesoniana
Piperaceae	Peperomia	lanceolata
Piperaceae	Peperomia	lancifolia
Piperaceae	Peperomia	lignescens
Piperaceae	Peperomia	maculosa
Piperaceae	Peperomia	matlalucaensis
Piperaceae	Peperomia	mollis
Piperaceae	Peperomia	montium
Piperaceae	Peperomia	obscurifolia
Piperaceae	Peperomia	obtusifolia
Piperaceae	Peperomia	ocumarana
Piperaceae	Peperomia	olivacea
Piperaceae	Peperomia	palmana
Piperaceae	Peperomia	panamensis
Piperaceae	Peperomia	pascuicola
Piperaceae	Peperomia	peltilimba
Piperaceae	Peperomia	pittieri
Piperaceae	Peperomia	poasana
Piperaceae	Peperomia	pseudoalpina
Piperaceae	Peperomia	pseudo-casaretti
Piperaceae	Peperomia	pyramidata
Piperaceae	Peperomia	quadrifolia
Piperaceae	Peperomia	rhexiifolia
Piperaceae	Peperomia	rotundifolia
Piperaceae	Peperomia	saligna
Piperaceae	Peperomia	serpens
Piperaceae	Peperomia	striata
Piperaceae	Peperomia	succulenta
Piperaceae	Peperomia	talinifolia
Piperaceae	Peperomia	tenella
Piperaceae	Peperomia	tenelliformis
Piperaceae	Peperomia	tenuipes
Piperaceae	Peperomia	ternata
Piperaceae	Peperomia	tetraphylla
Piperaceae	Peperomia	tonduzii
Piperaceae	Peperomia	tovariana
Piperaceae	Peperomia	tsakiana
Piperaceae	Peperomia	urocarpa
Piperaceae	Peperomia	venabulifolia
Piperaceae	Peperomia	villarrealii
Piperaceae	Piper	aduncum
Piperaceae	Piper	aequale
Piperaceae	Piper	aereum
Piperaceae	Piper	arboreum
Piperaceae	Piper	arieianum
Piperaceae	Piper	asymmetricum
Piperaceae	Piper	augustum
Piperaceae	Piper	auritum
Piperaceae	Piper	biauritum
Piperaceae	Piper	biolleyi
Piperaceae	Piper	bisasperatum
Piperaceae	Piper	biseriatum
Piperaceae	Piper	calceolarium
Piperaceae	Piper	carpinteranum
Piperaceae	Piper	cenocladum
Piperaceae	Piper	corrugatum
Piperaceae	Piper	crassinervium
Piperaceae	Piper	cuspidispicum
Piperaceae	Piper	davidsoni
Piperaceae	Piper	distigmatum

Piperaceae	Piper	dolichotrichum
Piperaceae	Piper	dotanum
Piperaceae	Piper	exiguicaule
Piperaceae	Piper	fimbriulatum
Piperaceae	Piper	fortunaense
Piperaceae	Piper	friedrichsthalii
Piperaceae	Piper	gibbosum
Piperaceae	Piper	glabrescens
Piperaceae	Piper	hebetifolium
Piperaceae	Piper	hispidum
Piperaceae	Piper	holdridgeianum
Piperaceae	Piper	imperiale
Piperaceae	Piper	irazuanum
Piperaceae	Piper	longispicum
Piperaceae	Piper	magnantherum
Piperaceae	Piper	maxonii
Piperaceae	Piper	nudifolium
Piperaceae	Piper	obliquum
Piperaceae	Piper	otophorum
Piperaceae	Piper	peltatum
Piperaceae	Piper	phytolaccifolium
Piperaceae	Piper	pittieri
Piperaceae	Piper	poasanum
Piperaceae	Piper	prismaticum
Piperaceae	Piper	pseudolanceifolium
Piperaceae	Piper	quitense
Piperaceae	Piper	sancti-felicis
Piperaceae	Piper	subsessilifolium
Piperaceae	Piper	tenuimucronatum
Piperaceae	Piper	terrabanum
Piperaceae	Piper	thomasii
Piperaceae	Piper	tonduzii
Piperaceae	Piper	umbellatum
Piperaceae	Piper	umbricola
Piperaceae	Piper	verruculosum
Piperaceae	Piper	wagneri
Piperaceae	Piper	zarceroense
Piperaceae	Piper	zhorquinense
Plantaginaceae	Plantago	australis
Plantaginaceae	Plantago	major
Poaceae	Acroceras	zizanioides
Poaceae	Agrostis	bacillata
Poaceae	Agrostis	perennans
Poaceae	Agrostis	subpatens
Poaceae	Agrostis	turrialbae
Poaceae	Agrostis	virescens
Poaceae	Andropogon	bicornis
Poaceae	Andropogon	glomeratus
Poaceae	Andropogon	leucostachyus
Poaceae	Arthrostylidium	judziewiczii
Poaceae	Arthrostylidium	merostachyoides
Poaceae	Arthrostylidium	venezuelae
Poaceae	Arundinella	berteroniana
Poaceae	Aulonemia	patriae
Poaceae	Aulonemia	viscosa
Poaceae	Axonopus	aureus
Poaceae	Axonopus	fissifolius
Poaceae	Axonopus	micay
Poaceae	Axonopus	purpusii
Poaceae	Calamagrostis	intermedia
Poaceae	Calamagrostis	nuda
Poaceae	Calamagrostis	pittieri
Poaceae	Chusquea	amistadensis
Poaceae	Chusquea	costaricensis
Poaceae	Chusquea	foliosa
Poaceae	Chusquea	longifolia
Poaceae	Chusquea	longiligulata
Poaceae	Chusquea	paludicola
Poaceae	Chusquea	patens
Poaceae	Chusquea	pohlii
Poaceae	Chusquea	subtessellata
Poaceae	Chusquea	subtilis
Poaceae	Chusquea	talamancensis
Poaceae	Chusquea	tonduzii
Poaceae	Chusquea	vulcanalis
Poaceae	Cinna	poiformis
Poaceae	Cortaderia	hapalotricha
Poaceae	Cortaderia	nitida
Poaceae	Cynodon	nlemfuensis
Poaceae	Dichanthelium	acuminatum
Poaceae	Dichanthelium	cordovense
Poaceae	Dichanthelium	laxiflorum
Poaceae	Dichanthelium	pantrichum
Poaceae	Dichanthelium	strigosum
Poaceae	Dichanthelium	viscidellum
Poaceae	Digitaria	pentzii
Poaceae	Festuca	breviglumis
Poaceae	Festuca	herrerae
Poaceae	Festuca	talamancensis
Poaceae	Gynerium	sagittatum
Poaceae	Holcus	lanatus
Poaceae	Homolepis	aturensis
Poaceae	Homolepis	glutinosa
Poaceae	Hyparrhenia	rufa
Poaceae	Ichnanthus	nemoralis
Poaceae	Ichnanthus	nemorosus
Poaceae	Ichnanthus	pallens
Poaceae	Ichnanthus	tenuis
Poaceae	Isachne	arundinacea
Poaceae	Ischaemum	latifolium
Poaceae	Lasiacis	linearis
Poaceae	Lasiacis	nigra
Poaceae	Lasiacis	oaxacensis
Poaceae	Lasiacis	rhizophora
Poaceae	Lasiacis	rugelii
Poaceae	Lasiacis	ruscifolia
Poaceae	Lasiacis	scabrior
Poaceae	Lasiacis	sorghoidea
Poaceae	Lasiacis	standleyi
Poaceae	Leptocoryphium	lanatum

Poaceae	Lithachne	pauciflora
Poaceae	Melinis	minutiflora
Poaceae	Muehlenbeckia	tamnifolia
Poaceae	Muhlenbergia	flabellata
Poaceae	Muhlenbergia	lehmanniana
Poaceae	Neurolepis	pittieri
Poaceae	Olyra	latifolia
Poaceae	Oplismenus	hirtellus
Poaceae	Panicum	polygonatum
Poaceae	Panicum	sellowii
Poaceae	Panicum	trichanthum
Poaceae	Paspalum	conjugatum
Poaceae	Paspalum	minus
Poaceae	Paspalum	saccharoides
Poaceae	Pharus	lappulaceus
Poaceae	Pharus	vittatus
Poaceae	Poa	annua
Poaceae	Polypogon	elongatus
Poaceae	Pseudechinolaena	polystachya
Poaceae	Rhipidocladum	pacuarense
Poaceae	Rhipidocladum	racemiflorum
Poaceae	Schizachyrium	sanguineum
Poaceae	Sporobolus	indicus
Poaceae	Thrasya	robusta
Poaceae	Trachypogon	plumosus
Poaceae	Trisetum	irazuense
Poaceae	Trisetum	pringlei
Poaceae	Urochloa	arrecta
Poaceae	Urochloa	decumbens
Poaceae	Urochloa	fusca
Poaceae	Zeugites	americana
Podocarpaceae	Podocarpus	oleifolius
Polemoniaceae	Cobaea	gracilis
Polemoniaceae	Cobaea	lutea
Polemoniaceae	Cobaea	minor
Polygalaceae	Monnina	costaricensis
Polygalaceae	Monnina	crepinii
Polygalaceae	Monnina	parasylvatica
Polygalaceae	Monnina	saprogena
Polygalaceae	Monnina	sylvatica
Polygalaceae	Monnina	xalapensis
Polygalaceae	Polygala	paniculata
Polygalaceae	Securidaca	diversifolia
Polygalaceae	Securidaca	sylvestris
Polygonaceae	Polygonum	acuminatum
Polygonaceae	Rumex	costaricensis
Polygonaceae	Rumex	obtusifolius
Polypodiaceae	Microgramma	percussa
Potamogetonaceae	Potamogeton	paramoanus
Proteaceae	Panopsis	acostana
Proteaceae	Panopsis	costaricensis
Proteaceae	Roupala	glaberrima
Proteaceae	Roupala	montana
Ranunculaceae	Ranunculus	flagelliformis
Ranunculaceae	Ranunculus	geranioides
Ranunculaceae	Ranunculus	peruvianus
Rhamnaceae	Ceanothus	caeruleus
Rhamnaceae	Gouania	lupuloides
Rhamnaceae	Rhamnus	capreifolia
Rhamnaceae	Rhamnus	oreodendron
Rhamnaceae	Rhamnus	sharpii
Rhamnaceae	Rhamnus	sphaerosperma
Rhizophoraceae	Cassipourea	elliptica
Rosaceae	Eriobotrya	japonica
Rosaceae	Hesperomeles	heterophylla
Rosaceae	Holodiscus	argenteus
Rosaceae	Lachemilla	fulvescens
Rosaceae	Lachemilla	pectinata
Rosaceae	Lachemilla	verticillata
Rosaceae	Prunus	brachybotrya
Rosaceae	Prunus	fortunensis
Rosaceae	Prunus	skutchii
Rosaceae	Rubus	eriocarpus
Rosaceae	Rubus	glaucus
Rosaceae	Rubus	irasuensis
Rosaceae	Rubus	malacocarpus
Rosaceae	Rubus	miser
Rosaceae	Rubus	urticifolius
Rubiaceae	Alibertia	atlantica
Rubiaceae	Alibertia	premontana
Rubiaceae	Amaioua	pedicellata
Rubiaceae	Arcytophyllum	lavarum
Rubiaceae	Arcytophyllum	muticum
Rubiaceae	Chiococca	pachyphylla
Rubiaceae	Chione	venosa
Rubiaceae	Cinchona	pubescens
Rubiaceae	Coccocypselum	cordifolium
Rubiaceae	Coccocypselum	herbaceum
Rubiaceae	Coccocypselum	hirsutum
Rubiaceae	Coccocypselum	lanceolatum
Rubiaceae	Condaminea	corymbosa
Rubiaceae	Cosmibuena	valerioi
Rubiaceae	Coussarea	caroliana
Rubiaceae	Coussarea	hondensis
Rubiaceae	Coussarea	latifolia
Rubiaceae	Coussarea	talamancana
Rubiaceae	Crusea	coccinea
Rubiaceae	Declieuxia	fruticosa
Rubiaceae	Deppea	grandiflora
Rubiaceae	Didymaea	alsinoides
Rubiaceae	Elaeagia	auriculata
Rubiaceae	Faramea	eurycarpa
Rubiaceae	Faramea	multiflora
Rubiaceae	Faramea	ovalis
Rubiaceae	Faramea	scalaris
Rubiaceae	Faramea	suerrensis
Rubiaceae	Faramea	uniflora
Rubiaceae	Galium	aschenbornii
Rubiaceae	Galium	hypocarpium
Rubiaceae	Galium	orizabense

Rubiaceae	Geophila	repens
Rubiaceae	Gonzalagunia	ovatifolia
Rubiaceae	Gonzalagunia	rosea
Rubiaceae	Gonzalagunia	stenostachya
Rubiaceae	Guettarda	crispiflora
Rubiaceae	Hamelia	macrantha
Rubiaceae	Hillia	grayumii
Rubiaceae	Hillia	loranthoides
Rubiaceae	Hillia	maxonii
Rubiaceae	Hillia	panamensis
Rubiaceae	Hillia	triflora
Rubiaceae	Hoffmannia	amplexifolia
Rubiaceae	Hoffmannia	arborescens
Rubiaceae	Hoffmannia	areolata
Rubiaceae	Hoffmannia	asclepiadea
Rubiaceae	Hoffmannia	bullata
Rubiaceae	Hoffmannia	congesta
Rubiaceae	Hoffmannia	davidsoniae
Rubiaceae	Hoffmannia	dotae
Rubiaceae	Hoffmannia	dwyeri
Rubiaceae	Hoffmannia	hamelioides
Rubiaceae	Hoffmannia	liesneriana
Rubiaceae	Hoffmannia	longipetiolata
Rubiaceae	Hoffmannia	manussatani
Rubiaceae	Hoffmannia	nicotianifolia
Rubiaceae	Hoffmannia	pallidiflora
Rubiaceae	Hoffmannia	pittieri
Rubiaceae	Hoffmannia	psychotriifolia
Rubiaceae	Hoffmannia	subauriculata
Rubiaceae	Hoffmannia	valerioi
Rubiaceae	Hoffmannia	vesiculifera
Rubiaceae	Ladenbergia	brenesii
Rubiaceae	Ladenbergia	valerioi
Rubiaceae	Manettia	barbata
Rubiaceae	Manettia	flexilis
Rubiaceae	Nertera	granadensis
Rubiaceae	Notopleura	aggregata
Rubiaceae	Notopleura	amicitiae
Rubiaceae	Notopleura	anomothyrsa
Rubiaceae	Notopleura	camponutans
Rubiaceae	Notopleura	capacifolia
Rubiaceae	Notopleura	capitata
Rubiaceae	Notopleura	costaricensis
Rubiaceae	Notopleura	elegans
Rubiaceae	Notopleura	guadalupensis
Rubiaceae	Notopleura	longipedunculoides
Rubiaceae	Notopleura	maxonii
Rubiaceae	Notopleura	pacorana
Rubiaceae	Notopleura	panamensis
Rubiaceae	Notopleura	peperomiae
Rubiaceae	Notopleura	pithecobia
Rubiaceae	Notopleura	polyphlebia
Rubiaceae	Notopleura	tolimensis
Rubiaceae	Notopleura	tonduzii
Rubiaceae	Notopleura	uliginosa
Rubiaceae	Palicourea	adusta
Rubiaceae	Palicourea	albocaerulea
Rubiaceae	Palicourea	angustifolia
Rubiaceae	Palicourea	calophlebioides
Rubiaceae	Palicourea	chiriquina
Rubiaceae	Palicourea	discolor
Rubiaceae	Palicourea	garciae
Rubiaceae	Palicourea	gomezii
Rubiaceae	Palicourea	hammelii
Rubiaceae	Palicourea	lasiorrhachis
Rubiaceae	Palicourea	montivaga
Rubiaceae	Palicourea	orosiana
Rubiaceae	Palicourea	padifolia
Rubiaceae	Palicourea	pauciflora
Rubiaceae	Palicourea	pendula
Rubiaceae	Palicourea	purpurea
Rubiaceae	Palicourea	salicifolia
Rubiaceae	Palicourea	skotakii
Rubiaceae	Palicourea	standleyana
Rubiaceae	Palicourea	triphylla
Rubiaceae	Palicourea	vestita
Rubiaceae	Pentagonia	costaricensis
Rubiaceae	Pentagonia	wendlandii
Rubiaceae	Posoqueria	coriacea
Rubiaceae	Posoqueria	latifolia
Rubiaceae	Psychotria	acuminata
Rubiaceae	Psychotria	allenii
Rubiaceae	Psychotria	amplifrons
Rubiaceae	Psychotria	angustiflora
Rubiaceae	Psychotria	aubletiana
Rubiaceae	Psychotria	aurantibractea
Rubiaceae	Psychotria	berteriana
Rubiaceae	Psychotria	buchtienii
Rubiaceae	Psychotria	calophylla
Rubiaceae	Psychotria	chiriquiensis
Rubiaceae	Psychotria	chiriquina
Rubiaceae	Psychotria	convergens
Rubiaceae	Psychotria	cyanococca
Rubiaceae	Psychotria	dichroa
Rubiaceae	Psychotria	elata
Rubiaceae	Psychotria	goldmanii
Rubiaceae	Psychotria	graciliflora
Rubiaceae	Psychotria	guapilensis
Rubiaceae	Psychotria	hazenii
Rubiaceae	Psychotria	jimenezii
Rubiaceae	Psychotria	marginata
Rubiaceae	Psychotria	microbotrys
Rubiaceae	Psychotria	nubiphila
Rubiaceae	Psychotria	orosiana
Rubiaceae	Psychotria	panamensis
Rubiaceae	Psychotria	paradichroa
Rubiaceae	Psychotria	parvifolia
Rubiaceae	Psychotria	pilosa
Rubiaceae	Psychotria	pisonioides
Rubiaceae	Psychotria	psychotriifolia

Rubiaceae	Psychotria	recordiana
Rubiaceae	Psychotria	rufiramea
Rubiaceae	Psychotria	sarapiquensis
Rubiaceae	Psychotria	sixaolensis
Rubiaceae	Psychotria	stenostachya
Rubiaceae	Psychotria	steyermarkii
Rubiaceae	Psychotria	sylvivaga
Rubiaceae	Psychotria	trichotoma
Rubiaceae	Psychotria	viridis
Rubiaceae	Randia	calycosa
Rubiaceae	Randia	gentryi
Rubiaceae	Randia	vazquezii
Rubiaceae	Raritebe	palicoureoides
Rubiaceae	Ronabea	latifolia
Rubiaceae	Rondeletia	amoena
Rubiaceae	Rondeletia	buddleioides
Rubiaceae	Rondeletia	tayloriae
Rubiaceae	Rudgea	horquetensis
Rubiaceae	Rudgea	skutchii
Rubiaceae	Rudgea	trifurcata
Rubiaceae	Sabicea	panamensis
Rubiaceae	Schradera	blumii
Rubiaceae	Schradera	costaricensis
Rubiaceae	Schradera	obtusifolia
Rubiaceae	Sommera	donnell-smithii
Rubiaceae	Spermacoce	assurgens
Rubiaceae	Spermacoce	capitata
Rubiaceae	Spermacoce	ocymifolia
Rubiaceae	Spermacoce	remota
Rutaceae	Amyris	brenesii
Rutaceae	Citrus	reticulata
Rutaceae	Raputia	heptaphylla
Rutaceae	Zanthoxylum	melanostictum
Sabiaceae	Meliosma	brenesii
Sabiaceae	Meliosma	cordata
Sabiaceae	Meliosma	depressiva
Sabiaceae	Meliosma	glabrata
Sabiaceae	Meliosma	grandiflora
Sabiaceae	Meliosma	idiopoda
Sabiaceae	Meliosma	occidentalis
Sabiaceae	Meliosma	subcordata
Sapindaceae	Allophylus	psilospermus
Sapindaceae	Cupania	glabra
Sapindaceae	Cupania	rufescens
Sapindaceae	Matayba	ingaefolia
Sapindaceae	Matayba	oppositifolia
Sapindaceae	Paullinia	bracteosa
Sapindaceae	Paullinia	brenesii
Sapindaceae	Paullinia	faginea
Sapindaceae	Paullinia	granatensis
Sapindaceae	Paullinia	ingaefolia
Sapindaceae	Paullinia	itayensis
Sapindaceae	Paullinia	talamancensis
Sapindaceae	Serjania	acuta
Sapindaceae	Serjania	membranacea
Sapotaceae	Chrysophyllum	colombianum
Sapotaceae	Micropholis	crotonoides
Sapotaceae	Micropholis	melinoniana
Sapotaceae	Pouteria	austin-smithii
Sapotaceae	Pouteria	ramiflora
Sapotaceae	Pouteria	reticulata
Schlegeliaceae	Gibsoniothamnu	parvifolius
Schlegeliaceae	Gibsoniothamnu	sp.B
Schlegeliaceae	Schlegelia	brachyantha
Schlegeliaceae	Schlegelia	parviflora
Scrophulariaceae	Alonsoa	meridionalis
Scrophulariaceae	Calceolaria	irazuensis
Scrophulariaceae	Calceolaria	Méxicana
Scrophulariaceae	Calceolaria	microbefaria
Scrophulariaceae	Calceolaria	tripartita
Scrophulariaceae	Castilleja	arvensis
Scrophulariaceae	Castilleja	irasuensis
Scrophulariaceae	Castilleja	talamancensis
Scrophulariaceae	Hemichaena	fruticosa
Scrophulariaceae	Lamourouxia	gutierrezii
Scrophulariaceae	Leucocarpus	perfoliatus
Scrophulariaceae	Lindernia	diffusa
Scrophulariaceae	Russelia	sarmentosa
Scrophulariaceae	Sibthorpia	repens
Scrophulariaceae	Veronica	peregrina
Simaroubaceae	Picramnia	latifolia
Simaroubaceae	Picramnia	teapensis
Siparunaceae	Siparuna	gesnerioides
Siparunaceae	Siparuna	tetraceroides
Siparunaceae	Siparuna	thecaphora
Smilacaceae	Smilax	domingensis
Smilacaceae	Smilax	mollis
Smilacaceae	Smilax	panamensis
Smilacaceae	Smilax	spinosa
Smilacaceae	Smilax	subpubescens
Smilacaceae	Smilax	vanilliodora
Solanaceae	Brachistus	stramoniifolius
Solanaceae	Browallia	americana
Solanaceae	Browallia	speciosa
Solanaceae	Brugmansia	candida
Solanaceae	Cestrum	acuminatum
Solanaceae	Cestrum	chiriquianum
Solanaceae	Cestrum	costaricense
Solanaceae	Cestrum	cristinae
Solanaceae	Cestrum	fragile
Solanaceae	Cestrum	irazuense
Solanaceae	Cestrum	lewisii
Solanaceae	Cestrum	microcalyx
Solanaceae	Cestrum	poasanum
Solanaceae	Cestrum	racemosum
Solanaceae	Cestrum	reflexum
Solanaceae	Cestrum	rugulosum
Solanaceae	Cestrum	schlechtendalii
Solanaceae	Cestrum	standleyi
Solanaceae	Cestrum	tomentosum

Solanaceae	Cuatresia	amistadensis
Solanaceae	Jaltomata	procumbens
Solanaceae	Larnax	sylvarum
Solanaceae	Lycianthes	beckneriana
Solanaceae	Lycianthes	furcatistellata
Solanaceae	Lycianthes	heteroclita
Solanaceae	Lycianthes	hygrophila
Solanaceae	Lycianthes	luteynii
Solanaceae	Lycianthes	maxonii
Solanaceae	Lycianthes	multiflora
Solanaceae	Lycianthes	pauciflora
Solanaceae	Lycianthes	sanctaeclarae
Solanaceae	Lycianthes	storkii
Solanaceae	Lycianthes	synanthera
Solanaceae	Merinthopodium	neuranthum
Solanaceae	Schultesianthus	crosbyanus
Solanaceae	Schultesianthus	leucanthus
Solanaceae	Solandra	brachycalyx
Solanaceae	Solanum	acerifolium
Solanaceae	Solanum	adhaerens
Solanaceae	Solanum	aligerum
Solanaceae	Solanum	americanum
Solanaceae	Solanum	aphyodendron
Solanaceae	Solanum	arboreum
Solanaceae	Solanum	armentalis
Solanaceae	Solanum	aturense
Solanaceae	Solanum	canense
Solanaceae	Solanum	celsum
Solanaceae	Solanum	chrysotrichum
Solanaceae	Solanum	circinatum
Solanaceae	Solanum	cordovense
Solanaceae	Solanum	evolvulifolium
Solanaceae	Solanum	fortunense
Solanaceae	Solanum	fraxinifolium
Solanaceae	Solanum	lepidotum
Solanaceae	Solanum	longiconicum
Solanaceae	Solanum	macrotonum
Solanaceae	Solanum	narcoticosmum
Solanaceae	Solanum	nigrescens
Solanaceae	Solanum	nudum
Solanaceae	Solanum	pastillum
Solanaceae	Solanum	pensile
Solanaceae	Solanum	pertenue
Solanaceae	Solanum	phaseoloides
Solanaceae	Solanum	pluviale
Solanaceae	Solanum	ramonense
Solanaceae	Solanum	roblense
Solanaceae	Solanum	rovirosanum
Solanaceae	Solanum	rudepannum
Solanaceae	Solanum	steyermarkii
Solanaceae	Solanum	storkii
Solanaceae	Solanum	taeniotrichum
Solanaceae	Solanum	trizygum
Solanaceae	Solanum	umbellatum
Solanaceae	Solanum	vacciniiflorum
Solanaceae	Solanum	velutinum
Solanaceae	Solanum	wendlandii
Solanaceae	Witheringia	asterotricha
Solanaceae	Witheringia	coccoloboides
Solanaceae	Witheringia	cuneata
Solanaceae	Witheringia	maculata
Solanaceae	Witheringia	meiantha
Solanaceae	Witheringia	solanacea
Staphyleaceae	Huertea	glandulosa
Staphyleaceae	Turpinia	occidentalis
Styracaceae	Styrax	argenteus
Styracaceae	Styrax	conterminus
Styracaceae	Styrax	glabrescens
Symplocaceae	Symplocos	austin-smithii
Symplocaceae	Symplocos	costaricana
Symplocaceae	Symplocos	elliptica
Symplocaceae	Symplocos	oreophila
Symplocaceae	Symplocos	serrulata
Theaceae	Cleyera	theoides
Theaceae	Freziera	candicans
Theaceae	Gordonia	brandegeei
Theaceae	Gordonia	fruticosa
Theaceae	Symplococarpon	purpusii
Theaceae	Ternstroemia	tepezapote
Thymelaeaceae	Daphnopsis	hammelii
Ticodendraceae	Ticodendron	incognitum
Tiliaceae	Heliocarpus	americanus
Tiliaceae	Mortoniodendron	abelianum
Tiliaceae	Mortoniodendron	moralesii
Tiliaceae	Triumfetta	bogotensis
Tiliaceae	Triumfetta	grandiflora
Tovariaceae	Tovaria	pendula
Tropaeolaceae	Tropaeolum	emarginatum
Tropaeolaceae	Tropaeolum	moritzianum
Tropaeolaceae	Tropaeolum	pendulum
Ulmaceae	Celtis	iguanaea
Ulmaceae	Lozanella	enantiophylla
Ulmaceae	Trema	micrantha
Ulmaceae	Ulmus	Méxicana
Urticaceae	Boehmeria	aspera
Urticaceae	Boehmeria	bullata
Urticaceae	Boehmeria	burgeriana
Urticaceae	Boehmeria	cylindrica
Urticaceae	Boehmeria	ulmifolia
Urticaceae	Myriocarpa	cordifolia
Urticaceae	Myriocarpa	longipes
Urticaceae	Phenax	hirtus
Urticaceae	Phenax	Méxicanus
Urticaceae	Phenax	rugosus
Urticaceae	Pilea	acuminata
Urticaceae	Pilea	angustifolia
Urticaceae	Pilea	auriculata
Urticaceae	Pilea	chiriquina
Urticaceae	Pilea	conjugalis
Urticaceae	Pilea	cornmanae

Urticaceae	Pilea	cornuto-cucullata
Urticaceae	Pilea	corona
Urticaceae	Pilea	costaricensis
Urticaceae	Pilea	dauciodora
Urticaceae	Pilea	donnell-smithiana
Urticaceae	Pilea	glabra
Urticaceae	Pilea	gracilipes
Urticaceae	Pilea	herniarioides
Urticaceae	Pilea	herrerae
Urticaceae	Pilea	microphylla
Urticaceae	Pilea	pallida
Urticaceae	Pilea	parietaria
Urticaceae	Pilea	pittieri
Urticaceae	Pilea	plumulosa
Urticaceae	Pilea	ptericlada
Urticaceae	Pilea	pteropodon
Urticaceae	Pilea	pubescens
Urticaceae	Pilea	rugosissima
Urticaceae	Pilea	Sp. nov.
Urticaceae	Pilea	tripartita
Urticaceae	Pilea	vulcanica
Urticaceae	Urera	baccifera
Urticaceae	Urera	caracasana
Urticaceae	Urera	corallina
Urticaceae	Urera	eggersii
Urticaceae	Urera	rzedowskii
Urticaceae	Urera	simplex
Urticaceae	Urera	sp.A
Urticaceae	Urera	sp.B
Urticaceae	Urera	verrucosa
Urticaceae	Urtica	leptophylla
Valerianaceae	Valeriana	candolleana
Valerianaceae	Valeriana	laxissima
Valerianaceae	Valeriana	prionophylla
Valerianaceae	Valeriana	pulchella
Verbenaceae	Aegiphila	anomala
Verbenaceae	Aegiphila	cephalophora
Verbenaceae	Aegiphila	elata
Verbenaceae	Aegiphila	falcata
Verbenaceae	Aegiphila	odontophylla
Verbenaceae	Aegiphila	panamensis
Verbenaceae	Aegiphila	valerioi
Verbenaceae	Citharexylum	donnell-smithii
Verbenaceae	Citharexylum	mocinnii
Verbenaceae	Cornutia	pyramidata
Verbenaceae	Lantana	camara
Verbenaceae	Lantana	hirta
Verbenaceae	Lippia	myriocephala
Verbenaceae	Verbena	litoralis
Violaceae	Gloeospermum	diversipetalum
Violaceae	Hybanthus	galeottii
Violaceae	Viola	guatemalensis
Violaceae	Viola	nannei
Violaceae	Viola	scandens
Violaceae	Viola	stipularis
Viscaceae	Dendrophthora	costaricensis
Viscaceae	Dendrophthora	davidsei
Viscaceae	Dendrophthora	squamigera
Viscaceae	Dendrophthora	talamancana
Viscaceae	Dendrophthora	turrialbae
Viscaceae	Phoradendron	annulatum
Viscaceae	Phoradendron	chrysocladon
Viscaceae	Phoradendron	crassifolium
Viscaceae	Phoradendron	piperoides
Viscaceae	Phoradendron	ravenii
Viscaceae	Phoradendron	undulatum
Viscaceae	Phoradendron	woodsonii
Vitaceae	Cissus	anisophylla
Vitaceae	Cissus	biformifolia
Vitaceae	Cissus	erosa
Vitaceae	Cissus	microcarpa
Vitaceae	Cissus	trianae
Vitaceae	Cissus	verticillata
Vitaceae	Vitis	tiliifolia
Vochysiaceae	Qualea	polychroma
Vochysiaceae	Vochysia	allenii
Winteraceae	Drimys	granadensis
Xyridaceae	Xyris	nigrescens
Xyridaceae	Xyris	subulata
Zingiberaceae	Hedychium	coronarium
Zingiberaceae	Renealmia	alpinia
Zingiberaceae	Renealmia	cernua
Zingiberaceae	Renealmia	chiriquina
Zingiberaceae	Renealmia	concinna
Zingiberaceae	Renealmia	congesta
Zingiberaceae	Renealmia	foliifera
Zingiberaceae	Renealmia	ligulata
Zingiberaceae	Renealmia	pluriplicata
Zingiberaceae	Renealmia	scaposa
Pteridaceae	Adiantum	andicola
Pteridaceae	Adiantum	humile
Pteridaceae	Adiantum	poiretii
Pteridaceae	Adiantum	seemannii
Pteridaceae	Cheilanthes	harrisii
Pteridaceae	Eriosorus	congestus
Pteridaceae	Eriosorus	flexuosus
Pteridaceae	Eriosorus	glaberrimus
Pteridaceae	Eriosorus	warscewiczii
Pteridaceae	Jamesonia	alstonii
Pteridaceae	Jamesonia	rotundifolia
Pteridaceae	Jamesonia	scammaniae
Pteridaceae	Mildella	intramarginalis
Pteridaceae	Pityrogramma	ferruginea
Pteridaceae	Pteris	altissima
Pteridaceae	Pteris	livida
Pteridaceae	Pteris	muricata
Pteridaceae	Pteris	muricatopedata
Pteridaceae	Pteris	muricella
Pteridaceae	Pteris	navarrensis
Pteridaceae	Pteris	paucinervata

Pteridaceae	Pteris	podophylla
Pteridaceae	Pteris	quadriaurita
Pteridaceae	Pterozonium	brevifrons
Aspleniaceae	Asplenium	abscissum
Aspleniaceae	Asplenium	alatum
Aspleniaceae	Asplenium	auriculatum
Aspleniaceae	Asplenium	auritum
Aspleniaceae	Asplenium	barbaense
Aspleniaceae	Asplenium	castaneum
Aspleniaceae	Asplenium	cirrhatum
Aspleniaceae	Asplenium	cladolepton
Aspleniaceae	Asplenium	cristatum
Aspleniaceae	Asplenium	cuspidatum
Aspleniaceae	Asplenium	dissectum
Aspleniaceae	Asplenium	divaricatum
Aspleniaceae	Asplenium	excelsum
Aspleniaceae	Asplenium	feei
Aspleniaceae	asplenium	flabellulatum
Aspleniaceae	Asplenium	fragrans
Aspleniaceae	Asplenium	gomezianum
Aspleniaceae	Asplenium	harpeodes
Aspleniaceae	Asplenium	hastatum
Aspleniaceae	Asplenium	holophlebium
Aspleniaceae	Asplenium	juglandifolium
Aspleniaceae	Asplenium	laetum
Aspleniaceae	Asplenium	maxonii
Aspleniaceae	Asplenium	miradorense
Aspleniaceae	Asplenium	myriophyllum
Aspleniaceae	Asplenium	polyphyllum
Aspleniaceae	Asplenium	pteropus
Aspleniaceae	Asplenium	pululahuae
Aspleniaceae	Asplenium	radicans
Aspleniaceae	Asplenium	repandulum
Aspleniaceae	Asplenium	rigidum
Aspleniaceae	Asplenium	riparium
Aspleniaceae	Asplenium	rosenstockianum
Aspleniaceae	Asplenium	rutaceum
Aspleniaceae	Asplenium	serra
Aspleniaceae	Asplenium	sessilifolium
Aspleniaceae	Asplenium	sphaerosporum
Aspleniaceae	Asplenium	uniseriale
Aspleniaceae	Asplenium	volubile
Blechnaceae	Blechnum	buchtienii
Blechnaceae	Blechnum	chiriquanum
Blechnaceae	Blechnum	christii
Blechnaceae	Blechnum	divergens
Blechnaceae	Blechnum	ensiforme
Blechnaceae	Blechnum	falciforme
Blechnaceae	Blechnum	fragile
Blechnaceae	Blechnum	fuscosquamosum
Blechnaceae	Blechnum	glandulosum
Blechnaceae	Blechnum	lehmannii
Blechnaceae	Blechnum	loxense
Blechnaceae	Blechnum	occidentale
Blechnaceae	Blechnum	stoloniferum
Blechnaceae	Blechnum	wardiae
Blechnaceae	Salpichlaena	thalassica
Cyatheaceae	Alsophila	erinacea
Cyatheaceae	Alsophila	polystichoides
Cyatheaceae	Cnemidaria	mutica
Cyatheaceae	Cyathea	acutidens
Cyatheaceae	Cyathea	albomarginata
Cyatheaceae	cyathea	caracasana
Cyatheaceae	Cyathea	delgadii
Cyatheaceae	Cyathea	divergens
Cyatheaceae	Cyathea	fulva
Cyatheaceae	Cyathea	gracilis
Cyatheaceae	Cyathea	schiedeana
Cyatheaceae	Cyathea	suprastrigosa
Cyatheaceae	Sphaeropteris	brunei
Dennstaedtiaceae	Blotiella	lindeniana
Dennstaedtiaceae	Dennstaedtia	arborescens
Dennstaedtiaceae	Dennstaedtia	auriculata
Dennstaedtiaceae	Dennstaedtia	bipinnata
Dennstaedtiaceae	Dennstaedtia	distenta
Dennstaedtiaceae	Histiopteris	incisa
Dennstaedtiaceae	Hypolepis	blepharochlaena
Dennstaedtiaceae	Hypolepis	bogotensis
Dennstaedtiaceae	Hypolepis	ditrichomatis
Dennstaedtiaceae	Hypolepis	grandis
Dennstaedtiaceae	Hypolepis	pulcherrima
Dennstaedtiaceae	Hypolepis	trichobacilliformis
Dennstaedtiaceae	Hypolepis	viscosa
Dennstaedtiaceae	Lindsaea	arcuata
Dennstaedtiaceae	Lindsaea	lancea
Dennstaedtiaceae	lindsaea	quadrangularis
Dennstaedtiaceae	Lindsaea	stricta
Dennstaedtiaceae	Lonchitis	hirsuta
Dennstaedtiaceae	Ormoloma	imrayanum
Dennstaedtiaceae	Paesia	anfractuosa
Dennstaedtiaceae	Paesia	glandulosa
Dennstaedtiaceae	Pteridium	arachnoideum
Dennstaedtiaceae	Pteridium	caudatum
Dennstaedtiaceae	Pteridium	feei
Dennstaedtiaceae	Saccoloma	inaequale
Dicksoniaceae	Culcita	coniifolia
Dicksoniaceae	Dicksonia	sellowiana
Dryopteridaceae	Arachniodes	denticulata
Dryopteridaceae	Arachniodes	ochropteroides
Dryopteridaceae	Didymochlaena	truncatula
Dryopteridaceae	Dryopteris	flaccisquama
Dryopteridaceae	Dryopteris	nubigena
Dryopteridaceae	Dryopteris	patula
Dryopteridaceae	Dryopteris	wallichiana
Dryopteridaceae	Dryopteris	wallichiana
Dryopteridaceae	Phanerophlebia	macrosora
Dryopteridaceae	Polybotrya	alfredii
Dryopteridaceae	Polybotrya	gomezii
Dryopteridaceae	Polystichum	concinnum
Dryopteridaceae	Polystichum	fournieri

Dryopteridaceae	Polystichum	hartwegii
Dryopteridaceae	Polystichum	talamancanum
Dryopteridaceae	Stigmatopteris	contracta
Dryopteridaceae	Stigmatopteris	heterophlebia
Gleicheniaceae	Dicranopteris	flexuosa
Gleicheniaceae	Sticherus	bifidus
Gleicheniaceae	Sticherus	brevipubis
Gleicheniaceae	Sticherus	compactus
Gleicheniaceae	Sticherus	intermedius
Gleicheniaceae	Sticherus	pallescens
Gleicheniaceae	Sticherus	palmatus
Gleicheniaceae	Sticherus	penniger
Gleicheniaceae	Sticherus	retroflexus
Gleicheniaceae	Sticherus	revolutus
Grammitidaceae	Ceradenia	aulaeifolia
Grammitidaceae	Ceradenia	fucoides
Grammitidaceae	Ceradenia	jungermannioides
Grammitidaceae	Ceradenia	kalbreyeri
Grammitidaceae	Ceradenia	kookenamae
Grammitidaceae	Ceradenia	phloiocharis
Grammitidaceae	Ceradenia	pilipes
Grammitidaceae	Ceradenia	podocarpa
Grammitidaceae	Ceradenia	tristis
Grammitidaceae	Cochlidium	rostratum
Grammitidaceae	Cochlidium	serrulatum
Grammitidaceae	Enterosora	bishopii
Grammitidaceae	Enterosora	campbellii
Grammitidaceae	Enterosora	parietina
Grammitidaceae	Enterosora	percrassa
Grammitidaceae	Enterosora	trifurcata
Grammitidaceae	Grammitis	bryophila
Grammitidaceae	Grammitis	leptopoda
Grammitidaceae	Grammitis	marginella
Grammitidaceae	Grammitis	paramicola
Grammitidaceae	Lellingeria	limula
Grammitidaceae	Lellingeria	melanotrichia
Grammitidaceae	Lellingeria	myosuroides
Grammitidaceae	Lellingeria	suprasculpta
Grammitidaceae	Lellingeria	tmesipteris
Grammitidaceae	Melpomene	anfractuosa
Grammitidaceae	Melpomene	firma
Grammitidaceae	Melpomene	flabelliformis
Grammitidaceae	Melpomene	moniliformis
Grammitidaceae	Melpomene	pilosissima
Grammitidaceae	Melpomene	xiphopteroides
Grammitidaceae	Micropolypodiu	hyalinum
Grammitidaceae	Micropolypodiu	nanum
Grammitidaceae	Micropolypodiu	setulosum
Grammitidaceae	Micropolypodiu	taenifolium
Grammitidaceae	Micropolypodiu	truncicola
Grammitidaceae	Terpsichore	alfarii
Grammitidaceae	Terpsichore	alsopteris
Grammitidaceae	Terpsichore	asplenifolia
Grammitidaceae	Terpsichore	atroviridis
Grammitidaceae	Terpsichore	cultrata
Grammitidaceae	Terpsichore	glandulifera
Grammitidaceae	Terpsichore	jamesonioides
Grammitidaceae	Terpsichore	lanigera
Grammitidaceae	Terpsichore	longisetosa
Grammitidaceae	Terpsichore	semihirsuta
Grammitidaceae	Terpsichore	senilis
Grammitidaceae	Terpsichore	subtilis
Grammitidaceae	Terpsichore	turrialbae
Grammitidaceae	Terpsichore	zeledoniana
Grammitidaceae	Zygophlebia	cornuta
Grammitidaceae	Zygophlebia	mathewsii
Grammitidaceae	Zygophlebia	sectifrons
Hymenophyllacea	Hymenophyllum	asplenioides
Hymenophyllacea	Hymenophyllum	consanguineum
Hymenophyllacea	Hymenophyllum	crispum
Hymenophyllacea	Hymenophyllum	elegans
Hymenophyllacea	Hymenophyllum	fragile
Hymenophyllacea	Hymenophyllum	fucoides
Hymenophyllacea	Hymenophyllum	hemidimorphum
Hymenophyllacea	Hymenophyllum	hemipteron
Hymenophyllacea	Hymenophyllum	horizontale
Hymenophyllacea	Hymenophyllum	lineare
Hymenophyllacea	Hymenophyllum	maxonii
Hymenophyllacea	Hymenophyllum	microcarpum
Hymenophyllacea	Hymenophyllum	myriocarpum
Hymenophyllacea	Hymenophyllum	plumosum
Hymenophyllacea	Hymenophyllum	polyanthos
Hymenophyllacea	Hymenophyllum	pulchellum
Hymenophyllacea	Hymenophyllum	sieberi
Hymenophyllacea	Hymenophyllum	siliquosum
Hymenophyllacea	Hymenophyllum	subrigidum
Hymenophyllacea	Hymenophyllum	talamancanum
Hymenophyllacea	Hymenophyllum	tegularis
Hymenophyllacea	Hymenophyllum	trapezoidale
Hymenophyllacea	Hymenophyllum	trichophyllum
Hymenophyllacea	Hymenophyllum	tunbrigense
Hymenophyllacea	Hymenophyllum	undulatum
Hymenophyllacea	Trichomanes	capillaceum
Hymenophyllacea	Trichomanes	collariatum
Hymenophyllacea	Trichomanes	consanguineum
Hymenophyllacea	Trichomanes	crinitum
Hymenophyllacea	Trichomanes	crispum
Hymenophyllacea	Trichomanes	delicatum
Hymenophyllacea	Trichomanes	diaphanum
Hymenophyllacea	Trichomanes	hymenophylloides
Hymenophyllacea	Trichomanes	lucens
Hymenophyllacea	Trichomanes	ludovicinum
Hymenophyllacea	Trichomanes	pellucens
Hymenophyllacea	Trichomanes	radicans
Hymenophyllacea	Trichomanes	rigidum
Hymenophyllacea	Trichomanes	trichopodium
Lomariopsidaceae	Bolbitis	oligarchica
Lomariopsidaceae	Bolbitis	pergamentacea
Lomariopsidaceae	Elaphoglossum	adrianae
Lomariopsidaceae	Elaphoglossum	affine

Lomariopsidaceae	Elaphoglossum	alfredii
Lomariopsidaceae	Elaphoglossum	auripilum
Lomariopsidaceae	Elaphoglossum	baquianorum
Lomariopsidaceae	Elaphoglossum	barbatum
Lomariopsidaceae	Elaphoglossum	biolleyi
Lomariopsidaceae	Elaphoglossum	bittneri
Lomariopsidaceae	Elaphoglossum	boquetense
Lomariopsidaceae	Elaphoglossum	boragineum
Lomariopsidaceae	Elaphoglossum	brenesii
Lomariopsidaceae	Elaphoglossum	caricifolium
Lomariopsidaceae	Elaphoglossum	caroliae
Lomariopsidaceae	Elaphoglossum	castaneum
Lomariopsidaceae	Elaphoglossum	ciliatum
Lomariopsidaceae	Elaphoglossum	cismense
Lomariopsidaceae	Elaphoglossum	conspersum
Lomariopsidaceae	Elaphoglossum	coriifolium
Lomariopsidaceae	Elaphoglossum	costaricense
Lomariopsidaceae	Elaphoglossum	coto-brusense
Lomariopsidaceae	Elaphoglossum	cotoi
Lomariopsidaceae	Elaphoglossum	curtii
Lomariopsidaceae	Elaphoglossum	cuspidatum
Lomariopsidaceae	Elaphoglossum	davidsei
Lomariopsidaceae	Elaphoglossum	decoratum
Lomariopsidaceae	Elaphoglossum	decursivum
Lomariopsidaceae	Elaphoglossum	engelii
Lomariopsidaceae	Elaphoglossum	entecnum
Lomariopsidaceae	Elaphoglossum	erinaceum
Lomariopsidaceae	Elaphoglossum	eximiiforme
Lomariopsidaceae	Elaphoglossum	eximium
Lomariopsidaceae	Elaphoglossum	foeniculaceum
Lomariopsidaceae	Elaphoglossum	fournierianum
Lomariopsidaceae	Elaphoglossum	fuliginosum
Lomariopsidaceae	Elaphoglossum	furfuraceum
Lomariopsidaceae	Elaphoglossum	glabellum
Lomariopsidaceae	Elaphoglossum	gloeorrhizum
Lomariopsidaceae	Elaphoglossum	hammelianum
Lomariopsidaceae	Elaphoglossum	heterochroum
Lomariopsidaceae	Elaphoglossum	hoffmannii
Lomariopsidaceae	Elaphoglossum	inaequalifolium
Lomariopsidaceae	Elaphoglossum	killipianum
Lomariopsidaceae	Elaphoglossum	lanceiforme
Lomariopsidaceae	Elaphoglossum	latifolium
Lomariopsidaceae	Elaphoglossum	leporinum
Lomariopsidaceae	Elaphoglossum	lingua
Lomariopsidaceae	Elaphoglossum	lonchophyllum
Lomariopsidaceae	Elaphoglossum	longicrure
Lomariopsidaceae	Elaphoglossum	longistipitatum
Lomariopsidaceae	Elaphoglossum	luteum
Lomariopsidaceae	Elaphoglossum	minutum
Lomariopsidaceae	Elaphoglossum	moranii
Lomariopsidaceae	Elaphoglossum	muscosum
Lomariopsidaceae	Elaphoglossum	nigrosquama
Lomariopsidaceae	Elaphoglossum	paleaceum
Lomariopsidaceae	Elaphoglossum	papillosum
Lomariopsidaceae	Elaphoglossum	pardalinum
Lomariopsidaceae	Elaphoglossum	peltatum
Lomariopsidaceae	Elaphoglossum	petiolatum
Lomariopsidaceae	Elaphoglossum	pilosius
Lomariopsidaceae	Elaphoglossum	proliferans
Lomariopsidaceae	Elaphoglossum	proximum
Lomariopsidaceae	Elaphoglossum	russelliae
Lomariopsidaceae	Elaphoglossum	sartorii
Lomariopsidaceae	Elaphoglossum	silencioanum
Lomariopsidaceae	Elaphoglossum	smithii
Lomariopsidaceae	Elaphoglossum	sp.B
Lomariopsidaceae	Elaphoglossum	squamiferum
Lomariopsidaceae	Elaphoglossum	squamipes
Lomariopsidaceae	Elaphoglossum	squamocostatum
Lomariopsidaceae	Elaphoglossum	talamancanum
Lomariopsidaceae	Elaphoglossum	tectum
Lomariopsidaceae	Elaphoglossum	terrestre
Lomariopsidaceae	Elaphoglossum	tonduzii
Lomariopsidaceae	elaphoglossum	variabile
Lomariopsidaceae	Lomariopsis	maxonii
Lophosoriaceae	Lophosoria	quadripinnata
Lophosoriaceae	Lophosoria	quesadae
Loxomataceae	Loxsomopsis	pearcei
Marattiaceae	Danaea	moritziana
Marattiaceae	Marattia	excavata
Marattiaceae	Marattia	laevis
Oleandraceae	Nephrolepis	cordifolia
Oleandraceae	Nephrolepis	pectinata
Oleandraceae	Nephrolepis	pendula
Oleandraceae	Oleandra	articulata
Oleandraceae	Oleandra	bradei
Oleandraceae	Oleandra	costaricensis
Ophioglossaceae	Botrychium	virginianum
Ophioglossaceae	Cheiroglossa	palmata
Ophioglossaceae	Ophioglossum	reticulatum
Polypodiaceae	Campyloneurum	amphostenon
Polypodiaceae	Campyloneurum	angustifolium
Polypodiaceae	Campyloneurum	aphanophlebium
Polypodiaceae	Campyloneurum	densifolium
Polypodiaceae	Campyloneurum	falcoideum
Polypodiaceae	Campyloneurum	fasciale
Polypodiaceae	Campyloneurum	repens
Polypodiaceae	Campyloneurum	sphenodes
Polypodiaceae	Niphidium	crassifolium
Polypodiaceae	Niphidium	nidulare
Polypodiaceae	Pecluma	divaricata
Polypodiaceae	pecluma	eurybasis
Polypodiaceae	Phlebodium	pseudoaureum
Polypodiaceae	Pleopeltis	complanata
Polypodiaceae	Pleopeltis	wiesbaurii
Polypodiaceae	Polypodium	dulce
Polypodiaceae	Polypodium	echinolepis
Polypodiaceae	Polypodium	furfuraceum
Polypodiaceae	Polypodium	fuscopetiolatum
Polypodiaceae	Polypodium	macrolepis
Polypodiaceae	Polypodium	montigenum

Polypodiaceae	Polypodium	myriolepis
Polypodiaceae	Polypodium	plebeium
Polypodiaceae	Polypodium	polypodioides
Polypodiaceae	Polypodium	remotum
Polypodiaceae	Polypodium	rosei
Polypodiaceae	Polypodium	tico
Polypodiaceae	Polypodium	ursipes
Polypodiaceae	Serpocaulon	dissimile
Polypodiaceae	Serpocaulon	falcaria
Polypodiaceae	Serpocaulon	giganteum
Selaginellaceae	Selaginella	arthritica
Selaginellaceae	Selaginella	corrugis
Selaginellaceae	Selaginella	moritziana
Tectariaceae	Ctenitis	equestris
Tectariaceae	Ctenitis	hemsleyana
Tectariaceae	Ctenitis	melanosticta
Tectariaceae	Lastreopsis	exculta
Tectariaceae	Lastreopsis	killipii
Tectariaceae	Megalastrum	acrosorum
Tectariaceae	Megalastrum	atrogriseum
Tectariaceae	Megalastrum	biseriale
Tectariaceae	Megalastrum	palmense
Tectariaceae	Megalastrum	skutchii
Tectariaceae	Megalastrum	subincisum
Tectariaceae	Tectaria	acerifolia
Tectariaceae	Tectaria	heracleifolia
Tectariaceae	Tectaria	incisa
Tectariaceae	Tectaria	nicotianifolia
Tectariaceae	Tectaria	rufovillosa
Thelypteridaceae	Macrothelypteris	torresiana
Thelypteridaceae	Thelypteris	atrovirens
Thelypteridaceae	Thelypteris	brachypus
Thelypteridaceae	Thelypteris	chiriquiana
Thelypteridaceae	Thelypteris	cinerea
Thelypteridaceae	Thelypteris	decussata
Thelypteridaceae	Thelypteris	deflexa
Thelypteridaceae	Thelypteris	delasotae
Thelypteridaceae	Thelypteris	eggersii
Thelypteridaceae	Thelypteris	ensiformis
Thelypteridaceae	Thelypteris	funckii
Thelypteridaceae	Thelypteris	germaniana
Thelypteridaceae	Thelypteris	gigantea
Thelypteridaceae	Thelypteris	gomeziana
Thelypteridaceae	Thelypteris	inaequans
Thelypteridaceae	Thelypteris	jimenezii
Thelypteridaceae	thelypteris	leprieurii
Thelypteridaceae	Thelypteris	linkiana
Thelypteridaceae	Thelypteris	longipilosa
Thelypteridaceae	Thelypteris	oaxacana
Thelypteridaceae	Thelypteris	oligocarpa
Thelypteridaceae	Thelypteris	pachyrhachis
Thelypteridaceae	Thelypteris	pilosula
Thelypteridaceae	Thelypteris	pusilla
Thelypteridaceae	Thelypteris	rudis
Thelypteridaceae	Thelypteris	rupestris
Thelypteridaceae	Thelypteris	serrata
Thelypteridaceae	Thelypteris	subscandens
Thelypteridaceae	Thelypteris	thomsonii
Thelypteridaceae	Thelypteris	valdepilosa
Vittariaceae	Anetium	citrifolium
Vittariaceae	Polytaenium	cajenense
Vittariaceae	Polytaenium	chlorosporum
Vittariaceae	Polytaenium	lineatum
Vittariaceae	Vittaria	costaricensis
Vittariaceae	Vittaria	dimorpha
Vittariaceae	Vittaria	gardneriana
Vittariaceae	Vittaria	graminifolia
Vittariaceae	Vittaria	lineata
Vittariaceae	Vittaria	minima
Vittariaceae	Vittaria	moritziana
Vittariaceae	Vittaria	remota
Vittariaceae	Vittaria	stipitata
Woodsiaceae	Cystopteris	fragilis
Woodsiaceae	Diplazium	atirrense
Woodsiaceae	Diplazium	brausei
Woodsiaceae	Diplazium	carnosum
Woodsiaceae	Diplazium	chimuense
Woodsiaceae	Diplazium	chiriquense
Woodsiaceae	Diplazium	cristatum
Woodsiaceae	Diplazium	diplazioides
Woodsiaceae	Diplazium	ferulaceum
Woodsiaceae	Diplazium	franconis
Woodsiaceae	Diplazium	grandifolium
Woodsiaceae	Diplazium	hians
Woodsiaceae	Diplazium	lechleri
Woodsiaceae	Diplazium	lindbergii
Woodsiaceae	Diplazium	multigemmatum
Woodsiaceae	Diplazium	obscurum
Woodsiaceae	Diplazium	palmense
Woodsiaceae	Diplazium	prominulum
Woodsiaceae	Diplazium	sanctae-rosae
Woodsiaceae	Diplazium	seemannii
Woodsiaceae	Diplazium	skutchii
Woodsiaceae	Diplazium	solutum
Woodsiaceae	Diplazium	sprucei
Woodsiaceae	Diplazium	subsilvaticum
Woodsiaceae	Diplazium	urticifolium
Woodsiaceae	Diplazium	werckleanum
Woodsiaceae	Diplazium	wilsonii
Woodsiaceae	Hemidictyum	marginatum

Coprofagous scarabs

Ateuchus fetteri
Ateuchus sp nov ‘zoebischi’
Canthon aberrans
Canthon aequinoctialis
Canthidium annagabrielae
Canthon angustatus
Canthidium ardens
Canthidium centrale
Coprophanaeus chiriquensis
Copris costaricensis
Canthidium darwini
Cryptocanthon denticulum
Canthidium discopygidiale
Canthidium haroldi
Copris incertus
Coprophanaeus kohlmanni
Canthon moniliatus
Canthidium pallidoalatum
Canthidium perceptibile
Canthidium planovultum
Cryptocanthon solisi
Canthidium tenebrosum
Canthidium tuberifrons
Canthon vazquezae
Canthidium vespertinum
Deltochilum gibbosum
Dichotomius favi
Deltochilum mexicanum
Deltochilum parile
Deltochilum pseudoparile
Dichotomius satanas
Eurysternus caribaeus
Eurysternus foedus
Eurysternus magnus
Eurysternus mexicanus
Eurysternus olivaceus
Eurysternus plebejus
Eurysternus streblus
Megathoposoma candezei
Onthophagus acuminatus
Onthophagus atrosericeus
Ontherus azteca
Onthophagus cercasolisi
Onthophagus coscineus
Onthophagus cryptodicranius
Onthophagus cyanellus
Onthophagus dorsipilulus
Onthophagus grataehelenae
Onthophagus incensus
Onthophagus limonensis
Onthophagus micropterus
Onthophagus notioides
Onthophagus nyctopus
Onthophagus orphnoides
Onthophagus propraecellens
Ontherus pseudodidymus
Ontherus sextuberculatus
Phanaeus pyrois
Scatimus erinnyos
Sulcophanaeus noctis
Sulcophanaeus velutinus
Trichillidium pilosum
Uroxys boneti
Uroxys depressifrons
Uroxys gatunensis
Uroxys nebulinus
Uroxys platypyga
Uroxys transversifrons

Herpetofauna (amphibia and reptiles

Species

Agalychnis callidryas
Agalychnis saltator
Allobates talamancae
Ameiva festiva
Atropoides picadoi
Bolitoglossa bramei
Bolitoglossa colonnea
Bolitoglossa compacta
Bolitoglossa lignicolor
Bolitoglossa minutula
Bolitoglossa pesrubra
Bolitoglossa robinsoni
Bolitoglossa robusta
Bolitoglossa sp.1
Bolitoglossa sp.2
Bothrops asper
Bothriechis lateralis
Bothriechis nigroviridis
Bothriechis schlegelii
Centrolenella prosoblepon
Cerrophidion godmani
Chaunus marinus
Cochranella albomaculata
Cochranella pulverata
Corytophanes cristatus
Craugastor bransfordii
Craugastor crassidigitus
Craugastor fitzingeri
Craugastor gollmeri
Craugastor gulosus
Craugastor megacephalus
Craugastor melanostictus
Craugastor persimilis
Craugastor podiciferus
Craugastor polyptichus
Craugastor sp.1
Craugastor sp.2
Craugastor sp.3
Craugastor stejnegerianus
Craugastor underwoodi
Crepidophryne epiotica
Dactyloa frenata
Dactyloa insignis
Dactyloa microtus
Dendrobates auratus
Dendropsophus ebraccatus
Dendrophidion nuchalis
Dendrophidion paucicarinatum
Dermophis glandulosus
Diasporus diastema
Diasporus hylaeformis
Diasporus sp.1
Diasporus vocator
Diploglossus bilobatus
Duellmanohyla uranochroa
Engystomops pustulosus
Geophis brachycephalus
Geophis hoffmanni
Hyalinobatrachyum chirripoi
Hyalinobatrachyum talamancae
Hydromorphus concolor
Imantodes cenchoa
Isthmohyla lancasteri
Isthmohyla picadoi
Isthmohyla pseudopuma
Kinosternon leucostomun
Lachesis stenophrys
Lepidoblepharis xanthostigma
Leptodactylus savagei
Liophis epinephelus
Lithobates vaillanti
Lithobates warszewitschii
Mabuya unimarginata
Mastigodryas melanolomus
Mesaspis monticola
Ninia maculata
Ninia psephota
Norops aquaticus
Norops biporcatus
Norops capito
Norops fungosus
Norops humilis
Norops kemptoni
Norops lemurinus
Norops limifrons
Norops oxylophus
Norops pachypus
Norops polylepis
Norops sp.1
Norops sp.2
Norops sp.3
Norops woodi
Nototriton sp
Oedipina sp.1
Oedipina sp.2
Oedipina uniformis
Ollotis conifera
Ollotis melanochlora
Oophaga pumilio
Oxyrhopus petolarius
Phyllobates lugubris
Pristimantis altae
Pristimantis caryophyllaceus
Pristimantis cerasinus
Pristimantis cruentus
Pristimantis moro
Pristimantis museosus
Pristimantis pardalis
Pristimantis ridens
Pristimantis sp.1
Pristimantis sp.2
Pristimantis sp.3
Pristimantis sp.4
Pristimantis sp.5
Pristimantis sp.6
Pristimantis sp7
Pristimantis sp8
Pristimantis sp9
Ptychoglossus plicatus
Rhadinaea decorata
Rhaebo haematiticus
Scaphiodontophis annulatus
Sceloporus malachiticus
Scinax elaeochroa
Sibon annulatus
Sibon dimidiatus
Smilisca phaeota
Smilisca sordida
Tantilla alticola
Tantilla reticulata
Trimetopon pliolepis

Annex 9 Project output 4. Keystone species and their conservation status according to current IUCN criteria (draft for publication)

See associated file 15-027 endangered species.pdf

Annex 10 Darwin Initiative output 16a: Project newsletter / bulletins

See associated file 15-027 bulletins-all.pdf

Annex 11 Project outputs 5 & 6. Training

Training in delimitation, use and updating/modification of life zones
Eduardo Boza Oviedo (UCR)
Earl Junier (MINAET-ACLAC)
Roney A. Samaniego (ANAM)
Clotilde Arrocha Vásquez (UNACHI)
Lionel Quiróz (ANAM)
Jorge Calderón Rojas (Ministerio de Seguridad Pública - Costa Rica)
Alex De Gracia (ANAM - DIGICH)
Cesar Mora M (ANAM - Chiriqui)
Ernesto Obaldia (ANAM - Chiriqui)
Fabricio Carbonell (ACLA-P)
Francisco Dominguez Barros (ACLA-C)
Jorge Gonzalez (ACLA-C)
Jovel Nuñez ANAM (Geomatica)
Roney Samaniego (ANAM)
Yoaris Aparicio (ANAM Chiriqui)

Training in ground-truthing of life zones
Hilario Sánchez (ANAM Park Guard)
Aurelio Hartmann (ANAM Park Guard)
Abelado Pitty (ANAM Park Guard)
David Mitre (PMA)
Alejandro De Sedas (PMA)
Jorge Lezcano (PMA)
Eyvar Rodríguez (UNACHI)
Laurenzo Martínez (PMA)
Eduardo Boza Obiedo (UCR)
Gerardo Chávez (UCR)
William Gamboa (local cattle farmer)
Carlos Godínez (ASOPROLA-Red Quercus)
Carlos Hernández (INBio)
Carlos Víquez (INBio)
Daniel Santamaría (INBio)
Daniel Solano (INBio)
Alexabder Rodríguez (INBio)
Nestor Veas (INBio)
Hugo Solano (local cattle farmer Red Quercus)
José Hernández (Zoológico Nacional Simón Bolivar)

Annex 12 Amphibian images uploaded to Amphibia web

Note that the tags acknowledging the project are temporary and will be replaced with the project title and number.

He colocado 47 fotos correspondientes a 28 especies de anfibios (4 de salamandras + 24 de anuros). Cada una lleva adjunta información taxonómica, sobre la localidad, la fecha, características del ambiente, y en algunos casos otras anotaciones.

Éstos son los enlaces a cada una de las fotos:

http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=266954&one=T

http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=274378&one=T

http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=285751&one=T

http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=285750&one=T

http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=286194&one=T

http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=285954&one=T

http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=285956&one=T

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http://calphotos.berkeley.edu/cgi/img_query?query_src=&seq_num=286199&one=T

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