

Importance de la taxonomie en biologie de la conservation

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La diversité biologique



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Article 2. Use of Terms

For the purposes of this Convention:

"Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

La « diversité biologique » signifie : variabilité des organismes vivants de toute origine y compris, entre autres, les écosystèmes terrestres, marins et autres écosystèmes aquatiques et les complexes écologiques dont ils font partie; cela comprend la diversité au sein des espèces et entre espèces ainsi que celle des écosystèmes.

Ecologiques:

- Habitats,
- Biomes, etc.



Organismiques:

- Individus,
- Populations,
- Espèces,
- Genres, etc.



Génétiques:

- Gènes,
- Chromosomes, etc.



Organismiques:

- Individus,**
- Populations,**
- Espèces,**
- Genres, etc.**



Diversité biologique:

« The variety and abundance of species in a defined unit of study »

Relation biodiversité-Homme

•Nourriture



Saturniidae



Palm weevil



Relation biodiversité-Homme

•Pollinisation



Putting numbers to the pollination crisis

44% of bee species are stable

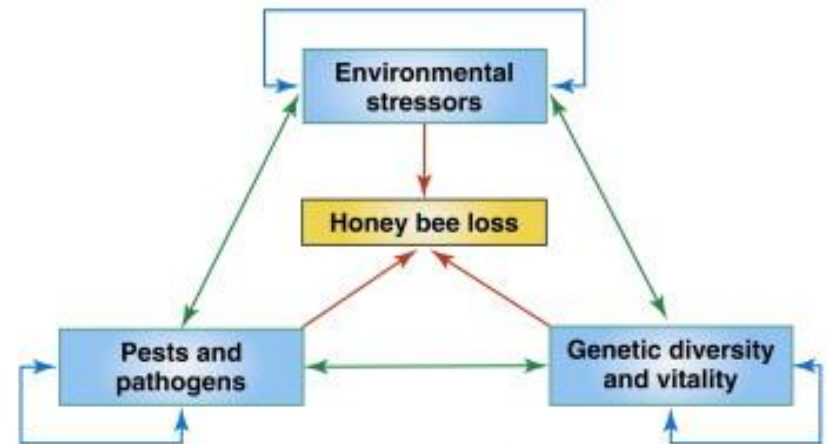
27% of bee species are increasing



29% of bee species are declining

Only 4 out of 187 species analyzed show dramatic declines

Bartomeus et al 2013 PNAS, In press.
Data reflects relative abundance changes in the northeastern US along the last 100 years



TRENDS in Ecology & Evolution

Relation biodiversité-Homme

•Colorant

Cochenilles, ...



The Truth About Red Food Dye Made from Bugs

Luke Yoquinto, MyHealthNewsDaily Contributor | April 27, 2012 01:51pm ET

545

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16

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10



Relation biodiversité-Homme

- Les **sciences forensiques** sont l'application de différentes méthodes pour résoudre des questions dans le domaine criminel ou légal.



Relation biodiversité-Homme

- autres



*Peripleneta
orientalis*
médical



Posted 12/26/2005 9:59 PM Updated 12/26/2005 10:35 PM

Scientists recruit wasps for war on terror

By Mimi Hall, USA TODAY

Scientists at a Georgia laboratory have developed what could be a low-tech, low-cost weapon in the war on terrorism: trained wasps.



Glen Rains uses the 'Wasp Hound' to monitor the behavior of wasps trained to detect a particular scent or volatile compound.

By Brad Haire, University of Georgia via AFP

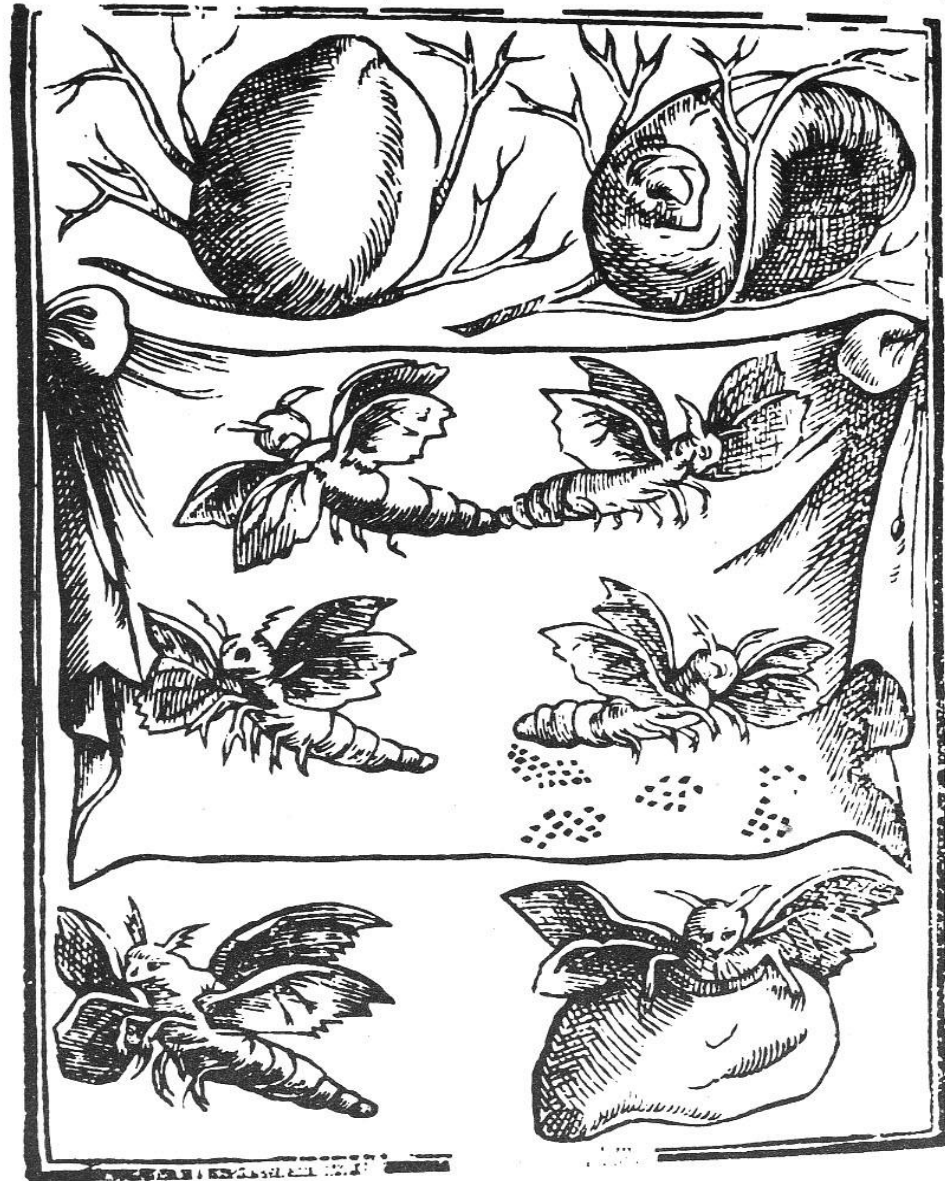
The tiny, non-stinging wasps can check for hidden explosives at airports and monitor for toxins in subway

Nommer la biodiversité : la Taxonomie

La taxonomie est une science, branche de la biologie, qui a pour objet de **décrire les organismes vivants et de les regrouper en entités appelées taxons** afin de les identifier puis les nommer et enfin les classer et de les reconnaître via des clés de détermination dichotomiques. Elle complète la **systematique** qui est la science qui organise le classement des taxons et leurs relations.

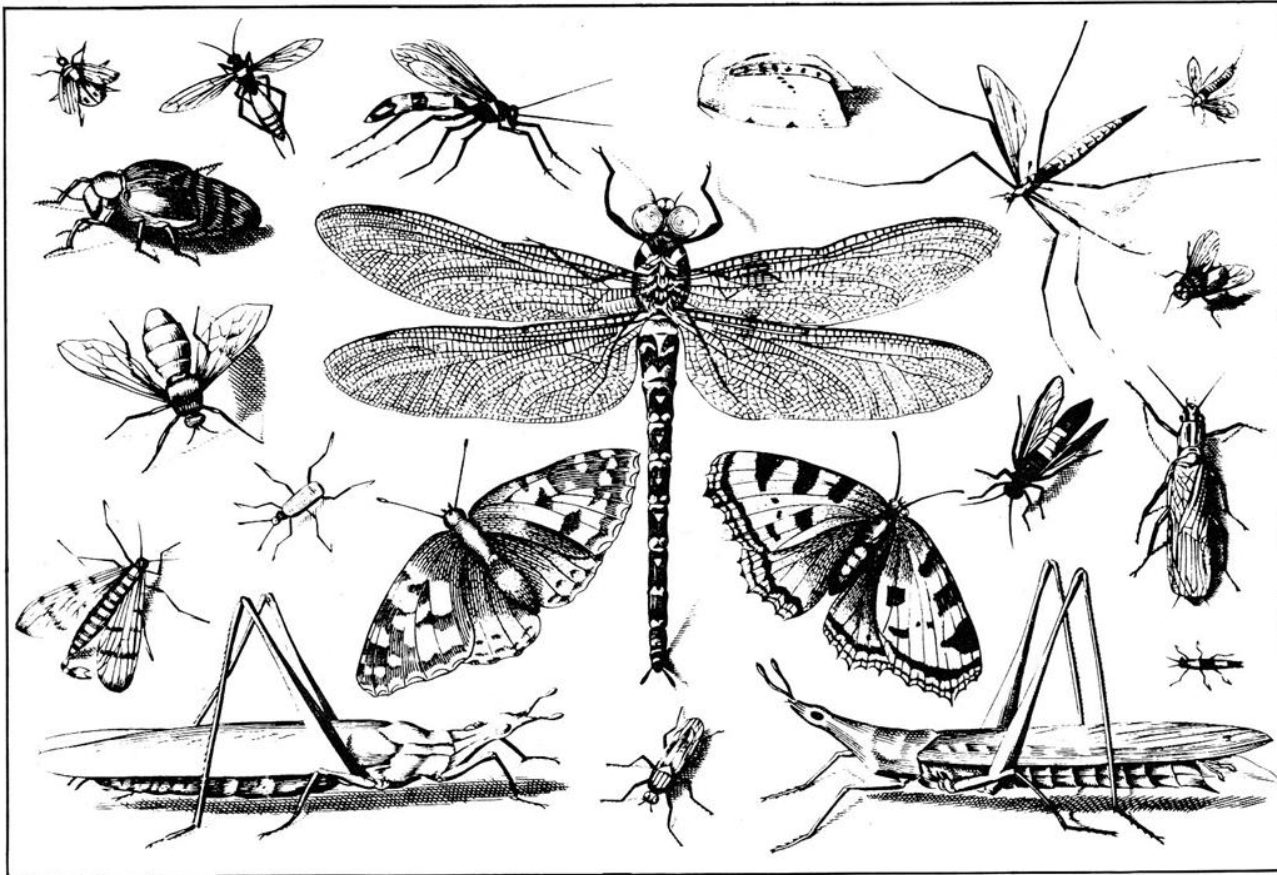
Jusqu'au 17ème siècle, on différenciait surtout les espèces utiles et les espèces nuisibles.

By this figure is shewed the portraits of the cods, and the Butterflies come forth of them, to engender and lay their eggs vpon blacke Serge, Chamblet, Tammey or such like stuffes as hath been said.



Silkworms. Woodcut from Jean Bonoel's *Treatise of the Art of Making Silke*, 1622.

Mais il y avait déjà des bases prometteuses...



Insects. Copper engraving by Jacob Hoe from the 1630 edition of George Hoefr *Archetypa*.

Maria Sybilla Merian



Figure 1.3 Maria Sybilla Merian, famous for her observations of insect natural history in the Guianas in the seventeenth century. (Frontispiece from her botanical work, *Erucarum horten-sis . . .*, Amsterdam, 1718)



René-Antoine de Réaumur



FIGURE 1. René Antoine Réaumur (1683–1756). The foremost entomological observer in the eighteenth century. Courtesy of Musée d’Histoire Naturelle, Paris.

Carl von Linné



FIGURE 3. Carl von Linné (1707–1778). The founder of true systematics.
After Tullberg: *Linnéporträtt* (1907).



Apis pubescens, thorace subgriseo, abdominae fusco, pedibus utrinque
Apis mellifera
Linnaeus 1758

L'abeille poilue avec le thorax gris, les pattes arrières glabres qui portent des pinceaux de soies de chaque côté

J. C. Fabricius

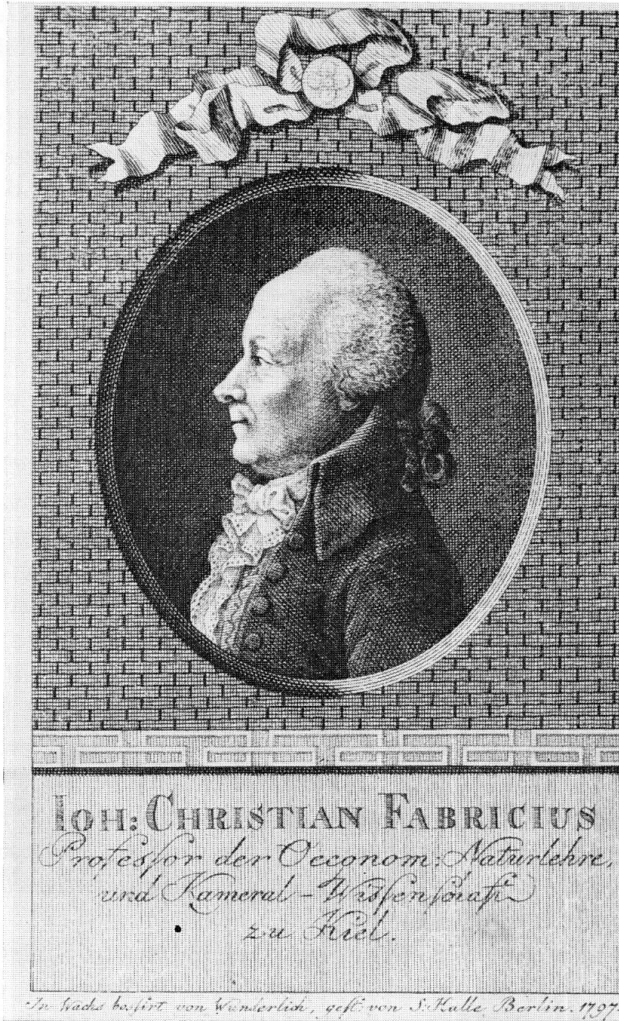


FIGURE 4. J. C. Fabricius (1745–1808). The foremost entomologist of the eighteenth century. Engraving from 1797.

Conception moderne des **ordres**
d'insectes

Classification basée sur l'appareil buccal

P. A. Latreille



FIGURE 5. P. A. Latreille (1762–1833). The founder of a “natural” system. After his *Genera Crustaceorum et Insectorum* 1(1806).

Introduction des **familles** d'insectes

Choix des caractères varié

**Fin des années 1800 et début 1900:
Développement des premières Règles de Nomenclature
standardisées**

**British Association (Strickland) Code (1842):
séparation entre botanistes et zoologistes**

**Premier Code de Zoologie publié en 1905 après
les Congrès Internationaux de Zoologie de 1901 et 1904**

Code ICZN actuel publié en 2000

THE CODE

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CASE FINDER

Case Number

The International Code of Zoological Nomenclature

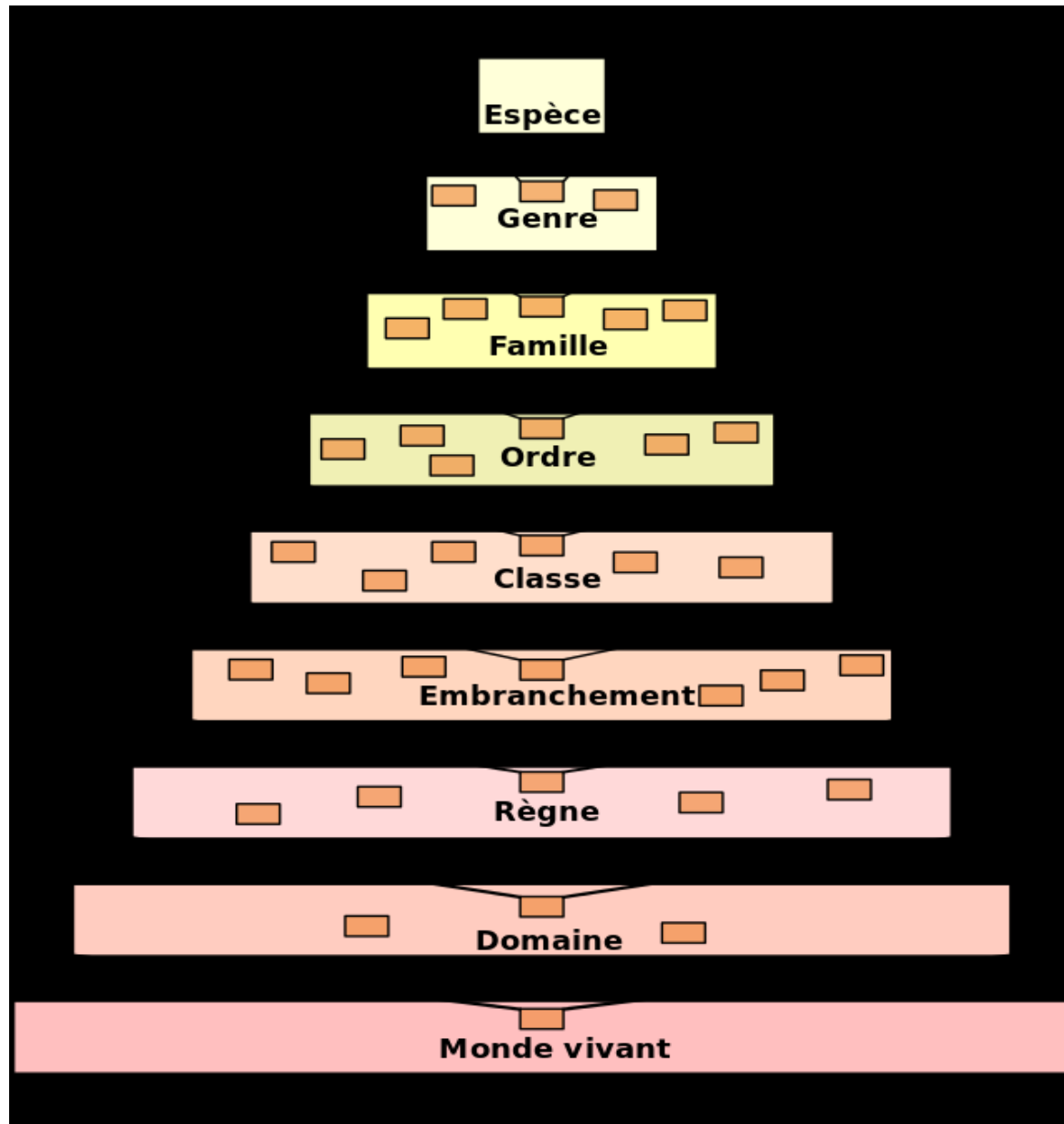
The online version of the code can be found here: [International Code of Zoological Nomenclature](#). The online version of the code is supported by the [John Spedan Lewis Trust](#).

ICZN is an Associate Participant to the Global Biodiversity Information Facility (GBIF) & a Scientific Member of the International Union of Biological Science (IUBS). ICZN is supported by the International Trust for Zoological Nomenclature (ITZN): UK Registered Charity No. 211944, Limited Company No. 429091 & VAT No. GB 240018319

Principes de base:

- Noms **uniques**
- **Priorité** de la publication
- Utilisation d'un **Type**
- Objectif: **stabilité**

Pourquoi faire de la taxonomie ?



Contexte: La crise de la biodiversité

- ⇒ Taux d'extinction des plantes et animaux n'a jamais été si élevé.
- ⇒ L'homme y contribue; extinction plus rapide que ce que l'on peut documenter
- ⇒ On prédit 10x plus d'extinctions dans 50 ans

Centinela (Equateur) Extinctions centinéliennes



Gasteranthus extinctus

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
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Taxonomy [top]

Kingdom	Phylum	Class	Order	Family
PLANTAE	TRACHEOPHYTA	MAGNOLIOPSIDA	SCROPHULARIALES	GESNERIACEAE

Scientific Name:	<i>Gasteranthus extinctus</i>
Species Authority:	L.E.Skog & L.P.Kvist

Assessment Information [top]

Red List Category & Criteria:	Critically Endangered A4c ver 3.1
Year Published:	2004
Date Assessed:	2004-04-30
Assessor(s):	Clark, J.L., Skog, L.E. & Pitman, N.
Reviewer(s):	Valencia, R., Pitman, N., León-Yáñez, S. & Jørgensen, P.M. (Ecuador Plants Red List Authority)

Justification:
A terrestrial herb endemic to Ecuador, and one of the famous species discovered on Cerro El Centinela by A. Gentry and C. Dodson in the 1970s and 1980s. The pessimistic name of the species is due to the fact that El Centinela forest was destroyed after the collections were made and the species has not been collected since. Known from four collections on El Centinela, located east of the Río Palenque private reserve, at km 12 of the Patricia Pilar-Flor de Mayo road. No specimens of this species are housed in Ecuadorean museums. Apart from habitat destruction, no specific threats are known.

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A cybertaxonomic revision of the micro-landsnail genus *Plectostoma* Adam (Mollusca, Caenogastropoda, Diplommatinidae), from Peninsular Malaysia, Sumatra and Indochina

Thor-Seng Liew^{1,2,3,4,†}, Jaap Jan Vermeulen^{1,5,‡},
Mohammad Effendi bin Marzuki^{6,§}, Menno Schilthuizen^{1,2,3,||}

Conservation status assessment

Overall, we suggest that 10 of the non-Bornean *Plectostoma* species are threatened and *P. sciaphilum* is extinct. Specifically, *P. umbilicatum*, *P. senex*, *P. turriforme*, *P. retrovertens*, *P. charasense*, and *P. tenggekensis* are in the Critically Endangered category; *P. kubuensis* is in the Endangered category; and *P. dindingensis*, *P. palinhelix*, and *P. laidlawi* are in the Vulnerable category. All of these species, except *P. laidlawi*, occur in limestone hills in the State of Pahang, Malaysia, where many of these hills are being quarried or are at risk of being quarried. Our assessments would eventually be submitted to IUCN.



Plectostoma sciaphilum

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Taxonomy [\[top\]](#)

Kingdom	Phylum	Class	Order	Family
ANIMALIA	MOLLUSCA	GASTROPODA	ARCHITAENIOGLOSSA	DIPLOMMATINIDAE

Scientific Name:	<i>Plectostoma sciaphilum</i>
Species Authority:	(van Benthem-Jutting, 1952)
Synonym(s):	<i>Opisthostoma sciaphilum</i> van Benthem-Jutting, 1952
Taxonomic Notes:	Recent taxonomic work by Liew Thorseng has shown that this species is part of the genus <i>Plectostoma</i> .

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Assessment Information [\[top\]](#)

Red List Category & Criteria:	Extinct ver 3.1
Year Published:	2014
Date Assessed:	2014-03-25
Assessor(s):	Thorseng, L.
Reviewer(s):	Schilthuizen, M. & Seddon, M.B.
Contributor(s):	Clements, R.
Justification:	This species had a very small area of occupancy (AOO) and was known only from a single locality. Surveys within suitable habitat around the last known site failed to locate any specimens of this species, hence it is considered to have been endemic to this site. The karst habitat was removed by quarrying in the mid 2000s, and recent survey work has confirmed that this species now extinct.
History:	2009 – Critically Endangered

« Critically Endangered Gecko Discovered in Madagascar »

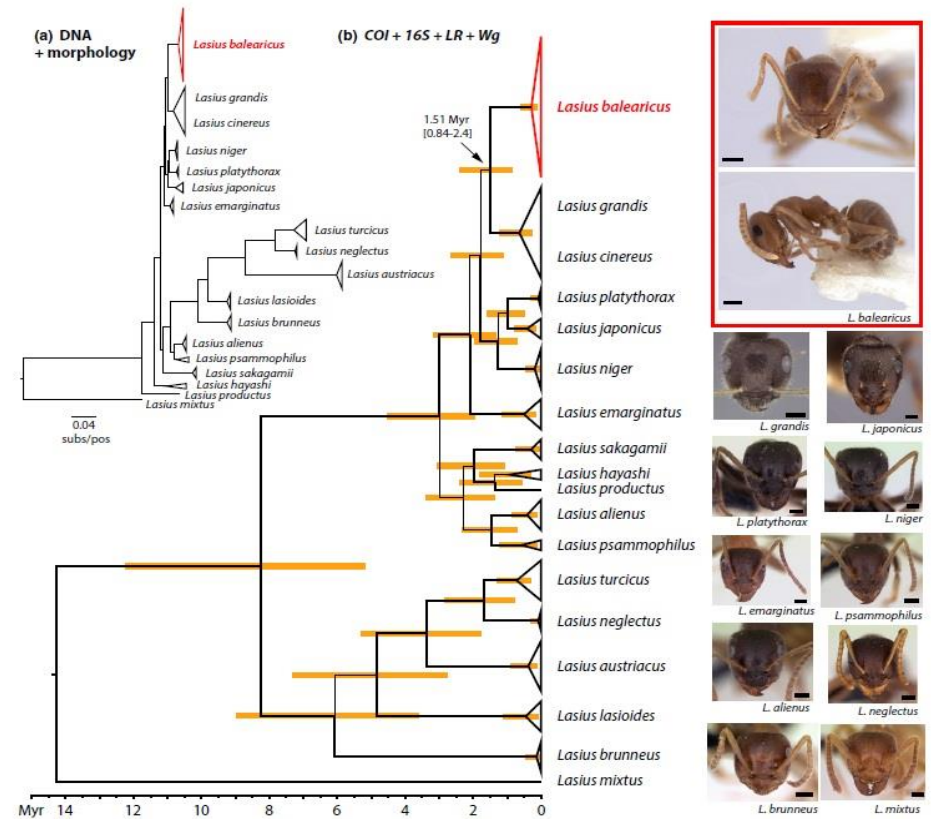
By John R. Platt | November 13, 2014 |



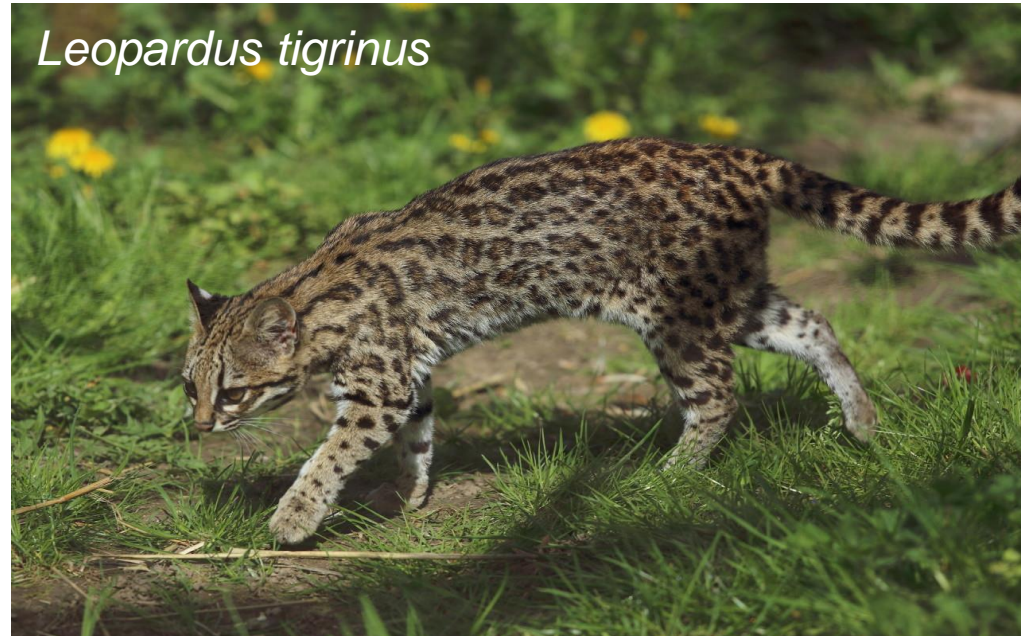
Paroedura hordiesi

Discovered just before extinction? The first endemic ant from the Balearic Islands (*Lasius balearicus* sp. nov.) is endangered by climate change

Gerard Talavera^{1,2,3*}, Xavier Espadaler⁴ and Roger Vila¹



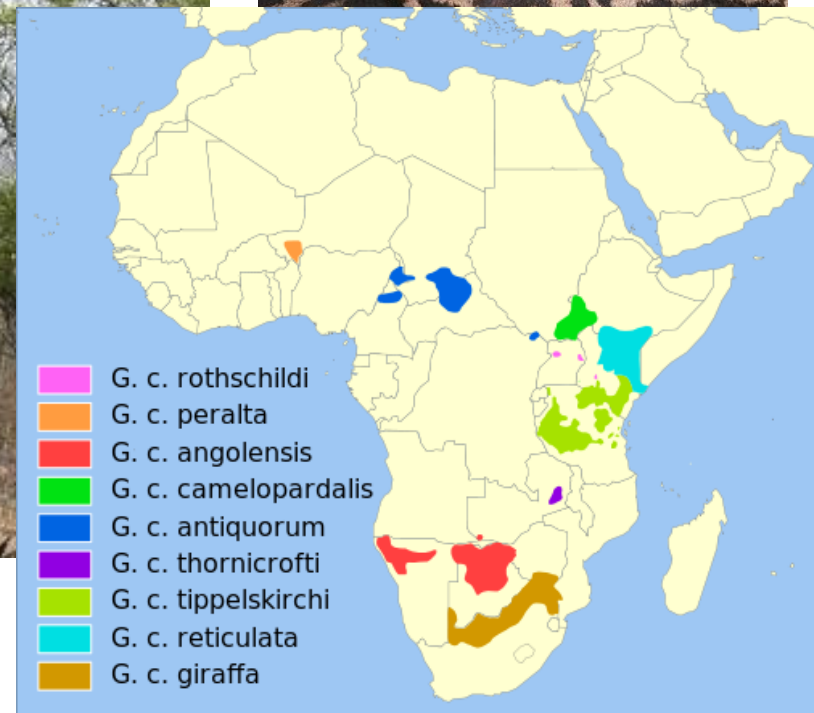
Apport des analyses ADN



Trigo et al. 2013. Molecular Data Reveal Complex Hybridization and a Cryptic Species of Neotrop

« Giraffes under Threat: Populations Down 40 Percent in Just 15 Years »

By John R. Platt | November 24, 2014 |



Cas du Loup Rouge, *Canis rufus*





Rediscovery of the ‘extinct’ Lord Howe Island stick-insect (*Dryococelus australis* (Montrouzier)) (Phasmatodea) and recommendations for its conservation

DAVID PRIDDEL^{1,*}, NICHOLAS CARLILE¹, MARGARET HUMPHREY²,
STEPHEN FELLENBERG³ and DEAN HISCOX⁴

Abstract. The Lord Howe Island Stick-insect (*Dryococelus australis*) was formerly abundant on Lord Howe Island, Australia, but was extirpated by Black Rats (*Rattus rattus*) in the 1920s. The species was thought to be extinct, until freshly dead remains were found by climbers on Balls Pyramid during the 1960s. In February 2001, a survey of Balls Pyramid led to the discovery of a small population of *D. australis* on a precipitous terrace 65 m above sea level. Two adults and one nymph (all females) were located feeding on an endemic tea-tree (*Melaleuca howeana*). An accumulation of plant debris at the base of the shrub, kept moist by water seepage, provided the insects with damp hollows suitable for use as daytime refugia. All evidence indicated that the species was confined to this single small terrace. A second survey, in March 2002, located a total of 24 *D. australis*. Twelve individuals were in the same shrub as that occupied the previous year, and 12 were dispersed among five nearby, smaller shrubs. Ten individuals were able to be sexed – eight females and two males. A number of threats to the population of *D. australis* on Balls Pyramid are identified and several management actions are proposed to ensure the conservation of the species.



Cas de *Rachistia aldabrae*



« A field expedition on Aldabra Atoll, Seychelles, has resulted in the **re-discovery** of the **Aldabra Band**

Labidura herculeana

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD
NE	DD	LC	NT	VU	EN	CR	EW



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Taxonomy [top]

Kingdom	Phylum	Class	Order	Family
ANIMALIA	ARTHROPODA	INSECTA	DERMAPTERA	LABIDURIDAE

Scientific Name:	<i>Labidura herculeana</i>
Species Authority:	(Fabricius, 1798)
Common Name(s):	English – St Helena Giant Earwig, St Helena Earwig, Saint Helena Earwig
Synonym(s):	<i>Labidura loveridgei</i> Zeuner, 1962
Taxonomic Notes:	Originally described as a full species, this taxon was downgraded to a subspecies of <i>L. riparia</i> by Kirby (1904). The taxon was reinstated as a valid species by Brindle (1970) and synonymised with <i>L. loveridgei</i> Zeuner, 1962 which had been described from subfossil forpces.

- Taxonomy
- Assessment Information
- Geographic Range
- Population
- Habitat and Ecology
- Threats
- Conservation Actions

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Found dead
beneath
stone on
Horse Point,
St. Helena Id.
A. Loveridge
coll. 13. III 73
H.P. B. N. E.
*Labidura
herculeana*
Fabricius.



(C) Takeshi Yamada, St. Helena Giant Earwig

