CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Inclusion of *Uroplatus* spp. in Appendix II.

The most recent update of the species list applicable to the genus *Uroplatus* (Duméril, 1805) is Raxworthy's from 2003, published in *The natural history of Madagascar* by Goodman and Benstead, University of Chicago Press. This update recognized 10 species within the genus *Uroplatus*, commonly known by its vernacular name of leaf-tailed gecko. These are: *U. alluaudi* Mocquard, 1894; *U. ebenaui* Boettger, 1879; *U. fimbriatus* Schneider, 1797; *U. guentheri* Mocquard, 1908; *U. henkeli* Böhme and Ibish, 1990; *U. lineatus* Duméril and Bibron, 1836; *U. malama* Nussbaum and Raxworthy, 1995; *U. malahelo* Nussbaum and Raxworthy, 1994; *U. phantasticus* Boulenger, 1888 and *U. sikorae* Boettger, 1913.

However, a new species was described in the same year in an issue of *Salamandra*. This is *Uroplatus pietschmanni*, identified by Böhle and Schönecker (2003). This species, which closely resembles *U. sikorae*, was for a long time confused with it and indeed continues to be so. Since this confusion could lead to problems relating not only to population and range limits, but also to how the quantity traded is divided up, and in the absence of proper verification and review on the ground, we take the view that it is preferable to leave it out of consideration for the present. Furthermore, several other forms are under study, and these may constitute new species.

Leaf-tailed geckos are among the reptiles which are traded internationally to differing extents, depending on the species concerned. The export data for 2001, 2002 and 2003 supplied by the Ministry of Water and Forests (MEF) make this point very clearly (see the analytical details in the section covering each individual species). Generally speaking, all of the specimens exported in a year have been taken from the wild. Captive breeding has not reached a point where its output will meet the demand. The impact of this harvesting from the wild for commercial purposes, although inadequately studied and frequently underestimated, is doubtless considerable and might lead to the species rapidly becoming locally extinct unless appropriate measures are taken in time. In addition, it is not so much the quantity taken which is of concern to naturalists and biologists involved in conservation, but rather how and where each species is harvested. Some species are rare and have a very restricted range, such as *Uroplatus alluaudi, U. malama* and *U. malahelo*. Others have a fairly wide range, but occur in a very specific and vulnerable habitat, namely low altitude rain forest, such as *U. fimbriatus* and *U. lineatus*. There are also species which are known only in certain forest zones and whose populations are highly fragmented, as is the case for *U. guentheri* and *U. phantasticus*. The preliminary results of ecological and biological studies currently under way suggest that leaf-tailed geckos have a remarkable degree of ecological specificity. That would in turn imply an extreme sensitivity to any change in their environment, including a change in population numbers.

Leaf-tailed geckos are not protected by any national laws or regulations. Internationally, they figure neither in the IUCN list nor in the CITES Appendices. The only guarantee for their survival would be their occurrence inside the network of protected areas. However, several species are not found there, or are represented in only one or two protected areas. Moreover, illegal gathering is frequently reported within the protected areas, despite checks and surveillance.

At least *Uroplatus alluaudi* probably meets the biological criteria for inclusion in Appendix I, in accordance with Resolution Conf. 9.24 (Rev. CoP12), Annex 1, paragraphs A. i) and B. i). However, to be more cautious, given the lack of precise data, it is preferable to propose that this species be included in Appendix II, in accordance with Article II, paragraph 2 (a), paragraph A. It is suggested that the species *U. guentheri, U. malama, U. malahelo* and the *ebenaui* complex in general be included in Appendix II in accordance with Article II, paragraph 2 (b), paragraph A. The latter proposal entails the inclusion of the remaining species in Appendix II in accordance with Article II, paragraph 2 (b), paragraph B.

B. Proponent

Madagascar.

C. Supporting statement

*Uroplatus*, commonly known by its English vernacular name of leaf-tailed gecko, is a genus endemic to Madagascar. It is represented by 10 arboreal species, which are strictly forest-dwelling (Raxworthy, 2003) and exhibit a remarkable degree of ecological specificity (Mahaviasy, in press), generally frequenting low and medium-altitude forests. They generally inhabit the rainforest, but there are some species that are found only in the dense dry tropical semi-deciduous forest in the west, south-west and north-west of the island, as well as in some transition forests.

There are two groups of species, defined by the presence or absence of lateral fringed flaps of skin. The first group comprises the species that do not have this feature, including *U. alluaudi, U. ebenaui, U. guentheri, U. lineatus, U. malama, U. malahelo* and *U. phantasticus*. These are of small to medium size, from the smallest, *U. ebenaui* at approximately 75 mm, to the largest *U. lineatus* at approximately 270 mm. The second group comprises the species which have lateral fringed flaps of skin on the body, the head and around the limbs. These include *U. fimbriatus, U. henkeli* and *U. sikorae*. The size varies between 150 mm (*U. sikorae*) and 330 mm approximately (*U. fimbriatus*).

Leaf-tailed geckos are nocturnal and present a remarkable degree of mimicry with their environment. They are especially adapted to avoiding predators, not only by this mimicry but also by flattening their bodies against their substrate to reduce the body's shadow, by voluntary tail-shedding in order to trick the predator and sometimes by the wide gaping of the mouth, showing a red-coloured buccal cavity to frighten off the enemy. Their adaptation to an arboreal life is demonstrated by the presence of adhesive scales under their fingers and toes and by the strong curved claws at the ends of them.

Leaf-tailed geckos are oviparous. A female lays a clutch of two spherical eggs, which are not stuck together. The shells are calcified. The eggs are generally laid on the ground under the leaf litter or a piece of wood at the foot of a tree, or in the dead leaves of plants having ensheathing leaves, such as pandanus or ravenala palms. Leaf-tailed geckos are insectivorous. Captive breeding of some species has enjoyed some success, in particular *U. ebenaui, U. phantasticus, U. sikorae, U. lineatus U. henkeli* and *U. fimbriatus*. In captivity, leaf-tailed geckos accept different types of food. This situation highlights the need to set up an effective monitoring system, by way of an inclusion in Appendix II, in order to ensure sound and transparent management of the harvesting of and trade in these species.

The nocturnal flat-tailed gecko (*Uroplatus alluaudi*) is endemic to Madagascar and is known only in the forest of the Amber Mountain in the extreme north of the island, at medium altitude. Various biological studies and investigations in the forest areas of the northern, north-western and north-eastern region have detected no examples of this species. It would appear that it is among the rarest species in Madagascar. Over the course of one month and a half of intensive biological inventorying in locations typical for the species, a team of four researchers found only one single specimen. Other multidisciplinary teams who visited the area did not find any. However, the list of species exported annually from Madagascar included a fairly significant number of specimens (25 in 2001 and 10 in 2002).

The details of exports of specimens of the other species are given in the sections below relating to the species in question.

References

Böhle, A. & P. Schönecker, 2003. Eine neue Art der Gattung Uroplatus Duméril, 1805 aus Ost-Madagaskar (Reptilia: Squamata: Gekkonidae). *Salamandra,* Rheinbach, 39 (3/4):129-138.

Raxworthy, C.J., 2003. Introduction to the Reptiles, pp. 934-949. In *The Natural History of Madagascar*. Goodman S.M. & J.P. Benstead (eds.). *The University of Chicago Press*. Chicago & London. Pp. 986-993.

Mahazoasy S.D. in press. Analyse de la systématique et de la distribution altitudinale de *Uroplatus* (Reptilia: Gekkonidae) dans le complexe de Tsaratanana. Doctoral dissertation, University of Antananarivo.

## *Uroplatus alluaudi* Mocquard, 1894

1. Taxonomy

   1.1 Class: Reptilia

   1.2 Order: Squamata

   1.3 Family: Gekkonidae

   1.4 Species: *Uroplatus alluaudi* Mocquard, 1894

   1.5 Scientific synonym:

   1.6 Common names: French:
   English: Leaf-tailed gecko
   Spanish:
   Malagasy Tahafisaka

2. Biological parameters

*Uroplatus alluaudi* forms part of the group of medium-sized leaf-tailed geckos, not having lateral fringed flaps of skin around the body or the limbs. The length of the body, including the head, varies between 69 and 79 mm (Glaw & Vences, 1994). A male over 80 mm in length was found in 1990 (Raselimanana, personal communication). The colouring is generally drab. It closely resembles *U. guentheri* which frequents the dry semi-deciduous forest of the western region of Madagascar, but can easily be distinguished by the very flattened shape of its tail, with a more delicate base to the tail. The young are light chestnut-brown in colour. This species has neither spines nor lateral fringed skin flaps.

No information is available on its biology. The sole specimen captured by scientists in 1990 was at medium altitude in a transition forest, namely the Amber Mountain forest. Some eggs have also been harvested in that location, but as they did not hatch, it is not known what type they were, since there are other species of leaf-tailed geckos in the same area. This species lays two spherical eggs, approximately 1 cm in diameter, not stuck together. They are laid on the ground, and under pieces of fallen wood, bark, and piled-up leaf litter. The shell is calcified.

2.1 Country of origin

Madagascar.

2.2 Distribution

The Fivondronana (sub-prefecture) of Ambohitra (Joffre-Ville) in the province of Antsiranana includes the Amber Mountain national park and forest. Distribution is restricted to the transition forest and the medium-altitude peripheral areas of the north-western part of the park and forest.

2.3 Habitat

The species is found in dense transition forest at medium altitude associated with the sub-humid microclimate, with fairly light undergrowth dominated by shrubs and young shoots. The canopy is almost closed, but has occasional gaps through which the rays of the sun can reach the ground. The altitude varies between 850 and 1000 m.

2.4 Population status

No information available. A systematic search, carried out twice, over four 50 m x 50 m quadrants set up in the area where the species is found produced only a single specimen.

2.5 Population trends

Unknown.

2.6 Extent of distribution

It is highly probable that this species is present in the western part of the Amber Mountain park and forest to the north of Ambohitra. The types of habitat there are identical to those in the area where it has been found. Occasional visits to this area, however, have provided no definite evidence.

2.7 Role of the species in its ecosystem

Like most geckos, this is an insectivorous species. It frequents the medium stratum, 3 to 6 m above the ground.

2.8 Threats

The principal threat is illegal harvesting. In the absence of any proof to the contrary, harvesting is thought to take place only within the protected area.

Despite the rarity of the species, more than 10 specimens are declared as having been exported every year, for which there are three possible explanations. Either, the harvesters are harvesting continuously and exhaustively in and around the reserve. Or, they are collecting the eggs which are easy to find, given that the undergrowth is fairly light and that the eggs are often laid in very specific spots. Or else, there is intentional or unintentional misidentification, with a different but similar species being used here to increase the quota.

3. Utilization and trade

3.1 National utilization

None.

3.2 Legal international trade

Although the number does not appear very large, it could well have a serious impact on population level, for a species having a distribution as restricted as *Uroplatus alluaudi*.

**Table 1**: Exports of *Uroplatus alluaudi* from Madagascar in 2000 and 2001

| Species/Country | Netherlands | Switzerland | Japan | Total |
|---|---|---|---|---|
| *U. alluaudi* | 25 | 2 | 10 | 37 |

(Source: MEF - CITES Management Authority, Madagascar: Report for the Year 2000 on Non-CITES Animals, Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals)

3.3 Illegal trade

In the light of the fairly restricted range of this species, it appears that any harvesting carried out is illegal. This has also been confirmed by observations on the ground. It is not uncommon to observe harvesting tools dropped in the forest where the harvesters gather the animals.

3.4 Actual or potential trade impacts

The information given above indicates that there could be a decline in the natural population.

3.5 Captive breeding for commercial purposes

No data available.

4. Conservation and management

4.1 Legal status

4.1.1 National

The destruction of the forest is not a particularly crucial problem for the species since its range is in and on the edge of the protected area. To date, no utilization by the local population or at national level has been detected.

4.1.2 International

The species is not included in any of the IUCN categories or in the CITES Appendices.

4.2 Species management

4.2.1 Population monitoring

No activity at present.

4.2.2 Habitat conservation

The habitat is a protected area.

4.2.3 Management measures

No management plan in place. Export is permitted but there is no clearly defined and scientifically based quota.

4.3 Control measures

4.3.1 International trade

No data available.

4.3.2 Domestic measures

Unknown.

5. Information on similar species

*Uroplatus guentheri* is the species which is morphologically closest (most similar). However, their ranges and types of habitat are different.

6. Other comments

An ecological and biological study would be advisable.

7. Additional remarks (if necessary)

---

8. References

Glaw, F. & M. Vences, 1994. A Field Guide to the Amphibians and Reptiles of Madagascar. Second edition including mammals and freshwater fish. Moos Druck, Leverkusen and FARBO, Cologne.

MEF, 2001. Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals. Antananarivo, Madagascar

MEF, 2002. Basic data of the CITES Management Authority, Madagascar for 2002 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2003. Basic data of the CITES Management Authority, Madagascar for 2003 on non-CITES animals. Antananarivo, Madagascar.

## *Uroplatus lineatus* Duméril & Bibron, 1836

1. Taxonomy

| | | |
|---|---|---|
| 1.1 | Class: | Reptilia |
| 1.2 | Order: | Squamata |
| 1.3 | Family: | Gekkonidae |
| 1.4 | Species: | *Uroplatus lineatus* Dumeril & Bibron, 1836 |
| 1.5 | Common names: | French:<br>English: Lined leaf-tailed gecko<br>Spanish:<br>Malagasy: Tahafisaka |

2. Biological parameters

This is an oviparous species. The reproductive period and the duration of incubation are still unknown. The species feeds on insects. Remains of mandibles and chitinous carapaces of *Blattidae* have been identified from analysis of the faecal matter from a specimen in Bezavona (Vohémar region).

2.1 Country of origin

Madagascar.

2.2 Distribution

*Uroplatus lineatus* has a medium-scale but fragmented range, being known only in eastern Madagascar.

2.3 Habitat

This is an arboreal species. It prefers littoral rain forest with plentiful supplies of bamboo.

2.4 Population status

No information is available on population status. The species is not very frequent within the area where it is found. Seven days of intensive searching unearthed only one specimen in the regions where this species has been encountered, suggesting a low population density in the wild.

2.5 Population trends

No data available

2.6 Extent of distribution

In addition to the locations cited in Glaw and Vences, 1994, and in Rakotomalala and Raselimanana, 2003, this species has recently been captured in Bezavona (Raxworthy *et al.*, unpublished). In other words the northern limit of this species can no longer be considered the Marojejy Massif in the Andapa region, but rather Bezavona, in the Vohémar region (Mahaviasy, personal communication). However, distribution remains fairly fragmented.

2.7 Role of the species in its ecosystem

It is a prey species, and plays a regulating role with regard to the populations of predatory species. Its position within the food chain suggests that it plays an important role in the transfer of energy.

2.8 Threats

The species may frequent the somewhat degraded growth areas, in particular areas of bamboo, *Zingiberaceae* and *Strelitziaceae*. This shows that it has some degree of tolerance for degradation of its natural habitat. Harvesting for commercial purposes, however, constitutes a threat to this species unless serious measures are taken. Given the low prevalence of the species in the wild, exhaustive or repetitive harvesting in the same locations entails the risk of its becoming locally extinct in the near future.

3. Utilization and trade

3.1 National utilization

No national utilization. Live specimens are sold to harvesters or directly to exporters.

3.2 Legal international trade

Reference to the number of specimens exported would indicate that there is little trade. Additionally, the number of specimens exported is changing from year to year. The export figures were 947 specimens in 2001, 698 in 2002 and 688 in 2003.

However, taking into account the experience in the wild with regard to this species, it may be concluded that even the legal trade should be closely re-examined.

3.3 Illegal international trade

No data available.

3.4 Actual or potential trade impacts

No data available.

3.5 Captive breeding for commercial purposes

No data available.

4. Conservation and management

4.1 Legal status

4.1.1 National

No protective legal status. It is, however, represented in at least two protected areas in which harvesting of specimens for commercial purposes is prohibited.

4.1.2 International

No legal status for conservation or management.

4.2 Species management

4.2.1 Population monitoring

No monitoring.

4.2.2 Habitat conservation

*Uroplatus lineatus* is known in at least two protected areas (Marojejy NP, Nosy Mangabe SR).

4.2.3 Management measures

No management measures.

4.3 Control measures

4.3.1 International trade

No data available.

4.3.2 Domestic measures

No data available.

5. Information on similar species

The elongated shape of this species is very characteristic. *Uroplatus lineatus* can be easily distinguished from other species by two forward-pointing spikes on the eyelid (Mahaviasy, personal communication), the more forward of the two being much more developed. There is no similar species, except for the colouring of both sexes.

6. References

Bauer, A. M. & A. P. Russell, 1989. A Systematic review of the genus *Uroplatus* (Reptilia: Gekkonidae) with comments on its biology. Journal of Natural History, 23:169 – 203.

Glaw, F. & M. Vences, 1994. A Field Guide to the Amphibians and Reptiles of Madagascar. Second edition including mammals and freshwater fish. Moos Druck, Leverkusen and FARBO, Cologne.

MEF, 2001. Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2002. Basic data of the CITES Management Authority, Madagascar for 2002 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2003. Basic data of the CITES Management Authority, Madagascar for 2003 on non-CITES animals. Antananarivo, Madagascar.

Rakotomalala, D & A.P. Raselimanana, 2003. Les amphibiens et les reptiles des massifs de Marojejy, d'Anjanaharibe-Sud et du couloir forestier de Betaolana, In *Nouveaux résultats d'inventaires biologiques faisant référence à l'altitude dans la région des massifs montagneux de Marojejy and d'Anjanararibe-Sud*. S.M. Goodman and L. Wilmé (eds.). Centre d'Information et de Documentation Scientifique et Technique, Antananarivo, Recherches pour le Développement, Série Sciences biologiques, No. 19: 146-201.

**Table:** Exports of *Uroplatus lineatus from* Madagascar in 2001, 2002 and 2003.

| Year | Species | Germany | Canada | Japan | Switzerland | Australia | France | Taiwan (Province of China) | Netherlands | USA | UK | Italy | Spain | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | *U. lineatus* | 59 | 360 | 30 | | | | | | 474 | 6 | | 18 | **947** |
| | | | | | | | | | | | | | | |
| 2002 | *U. lineatus* | 10 | 390 | 80 | 4 | 12 | 10 | | 10 | 242 | 10 | | 30 | **698** |
| | | | | | | | | | | | | | | |
| 2003 | *U. lineatus* | 26 | 90 | 20 | 18 | | 10 | 20 | 4 | 482 | 10 | 6 | | **688** |

(Source: MEF - Cites Management Authority, Madagascar)

An overall analysis of these export data has shown that over the past three years, the United States of America has been the principal destination of the specimens exported, accounting on its own for 50.05 per cent of exports in 2001, 34.67 per cent in 2002 and 70.05 per cent in 2003. Additionally, the appearance of new countries and territories may be noted, such as Switzerland, France, the Netherlands, Italy and Taiwan (Province of China). This indicates a growth in market demand. The drop in the rate of exporting in 2002 is purely and simply the result of the political crisis in Madagascar.

## *Uroplatus fimbriatus* Schneider, 1797

1. Taxonomy

| | | |
|---|---|---|
| 1.1 | Class: | Reptilia |
| 1.2 | Order: | Squamata |
| 1.3 | Family: | Gekkonidae |
| 1.4 | Species: | *Uroplatus fimbriatus* Schneider, 1797 |
| 1.5 | Common names: | French:<br>English: Giant leaf-tailed gecko<br>Spanish:<br>Malagasy: Razamboay |

2. Biological parameters

This is an oviparous species, with the pregnant female carrying two eggs in its abdomen. Reproduction takes place right in the middle of the rainy season: January and February (Mahaviasy, personal communication). A pregnant female was encountered in Bezavona in February 2003; and also some young. The duration of incubation in the natural environment is still unknown.

The species feeds on insects. A specimen engaged in hunting was watched during night observations in Analalava (NE Madagascar), and was seen to catch one of its prey, *Phasmattidae.*

2.1 Country of origin

Madagascar.

2.2 Distribution

*Uroplatus fimbriatus* has a medium-scale but fragmented range, being known only in eastern Madagascar (Mahaviasy, personal communication).

2.3 Habitat

Being a strictly arboreal species, it prefers the littoral rain forest of the eastern part of the island.

2.4 Population status

No information is available on population status. The species is not very frequent in the areas where it is found. In seven days of intensive searching no more than six specimens were found in the areas where this species is encountered. This situation suggests a low population density in the wild.

2.5 Population trends

No data available.

2.6 Extent of distribution

In addition to the localities cited in Glaw and Vences, 1994, this species has recently been harvested in the various regions of Vohémar: Analalava, Bezavona and Salafaina (Raxworthy *et al.*, unpublished). However, distribution remains fairly fragmented.

2.7 Role of the species in its ecosystem

It is a prey species, and plays a regulating role with regard to the populations of predatory species. Its position within the food chain suggests that it plays an important role in the transfer of energy.

2.8 Threats

The species is not able to frequent degraded growth areas, and is thus far from tolerant of a degradation in its natural habitat. Additionally, harvesting for commercial purposes constitutes a threat to this species unless serious measures are taken. Given the low abundance of the species in the wild, exhaustive or repetitive harvesting in the same places entails a risk of its becoming locally extinct in the near future.

3. Utilization and trade

3.1 National utilization

No national utilization. Live specimens are sold to harvesters or directly to exporters.

3.2 Legal international trade

Reference to the number of specimens exported indicates a vigorous trade. The total number of specimens exported is always above 1,000.

Taking into account the experience in the wild with regard to this species, it may be concluded that even the legal trade should be closely re-examined.

3.3 Illegal international trade

No data available.

3.4 Actual or potential trade impacts

No data available.

3.5 Captive breeding for commercial purposes

There is captive breeding for commercial purposes, but only in small numbers. Nevertheless, the species is exported from Madagascar.

4. Conservation and management

4.1 Legal status

4.1.1 National

No protected legal status. It is, however, represented in at least three protected areas where harvesting of specimens for commercial purposes is prohibited.

4.1.2 International

No legal status for conservation or management.

4.2 Species management

4.2.1 Population monitoring

No monitoring.

4.2.2 Habitat conservation

*Uroplatus fimbriatus* is known in at least three protected areas (Analamazaotra NP, Marojejy NP, Ranomafana NP).

4.2.3 Management measures

No management measures.

4.3 Control measures

4.3.1 International trade

No data available.

4.3.2 Domestic measures

No data available.

5. Information on similar species

*Uroplatus fimbriatus* is the largest of all the species in the group and of all living geckos. The fringed flaps of skin are lightly marked under the axillae of the front limbs. Only the inner side of the tibia does not have the flaps (Mahaviasy, personal communication). There is no similar species.

6. References

Bauer, A. M. & A. P. Russell, 1989. A Systematic review of the genus *Uroplatus* (Reptilia: Gekkonidae) with comments on its biology. Journal of Natural History, 23:169 – 203.

Glaw, F. & M. Vences, 1994. A Field Guide to the Amphibians and Reptiles of Madagascar. Second edition including mammals and freshwater fish. Moos Druck, Leverkusen and FARBO, Cologne.

MEF, 2001. Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2002. Basic data of the CITES Management Authority, Madagascar for 2002 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2003. Basic data of the CITES Management Authority, Madagascar for 2003 on non-CITES animals. Antananarivo, Madagascar.

**Table**: Exports of *Uroplatus fimbriatus* from Madagascar in 2001, 2002 and 2003.

| Year | Species | Germany | Canada | Japan | Switzerland | Netherlands | France | Italy | USA | UK | Indonesia | Thailand | Spain | Taiwan (Province of China) | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | *U. fimbriatus* | 100 | 208 | 40 | 20 | 15 | 8 | | 1073 | 32 | | 4 | 27 | | **1427** |
| | | | | | | | | | | | | | | | |
| 2002 | *U. fimbriatus* | 16 | 235 | 102 | 20 | | 10 | | 618 | 10 | 30 | | 40 | | **1081** |
| | | | | | | | | | | | | | | | |
| 2003 | *U. fimbriatus* | 155 | 60 | 28 | 18 | 54 | 25 | 70 | 824 | | | 8 | | 20 | **1262** |

(Source: MEF - Cites Management Authority, Madagascar)

An overall analysis of these export data has shown that over the past three years, the United States has been the principal destination of the specimens exported, accounting on its own for 75.2 per cent of exports in 2001, 57.17 per cent in 2002 and 75.6 per cent in 2003. Additionally, the appearance of new countries and territories may be noted, such as Indonesia, Italy and Taiwan (Province of China). This indicates an increase in market demand. The drop in 2002 is purely and simply the result of the crisis in Madagascar.

*Uroplatus ebenaui* Boettger, 1879

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Squamata

1.3 Family: Gekkonidae

1.4 Species: *Uroplatus ebenaui* Boettger, 1879

1.5 Common names: French:
English:
Spanish:
Malagasy: Voainala

2. Biological parameters

It is an oviparous species. In the female, a yellowish epidermic stripe is present between toes 4 and 5, and reaches as far as the knee. If the male has this stripe, it does not reach as far as the knee. The dorsal surface of the male has spines arranged symmetrically on the outside (Mahaviasy, personal communication). In the female, this surface is smooth. The reproductive period and the duration of incubation are still unknown. The species feeds on insects.

2.1 Country of origin

Madagascar.

2.2 Distribution

*Uroplatus ebenaui* has a medium-scale but very fragmented range, being known exclusively in the north-west and extreme north of Madagascar.

2.3 Habitat

It is an arboreal species. It prefers dense ombrophilous forests at very low altitudes: 0 m – 400 m (Mahaviasy, personal communication).

2.4 Population status

No information is available on population status. The species is not very frequent in the areas where it is found. In seven days of intensive searching no more than six specimens were found in the areas where this species is encountered. This situation suggests a low population density in the wild.

2.5 Population trends

No data available.

2.6 Extent of distribution

In addition to the localities cited in Glaw and Vences, 1994, this species has recently been harvested in other regions of Vohémar: Analalava and Isahaka (Raxworthy *et al.*, unpublished). However, its distribution remains fairly fragmented.

2.7 Role of the species in its ecosystem

It is a prey species, and plays a regulating role with regard to the populations of predatory species. Its position within the food chain suggests that it plays an important role in the transfer of energy.

2.8 Threats

The species is able to frequent fairly degraded growth areas, in particular open secondary growth areas, but with a very low population. Thus is has a certain tolerance for degradation of its natural habitat. Harvesting for commercial purposes constitutes a threat to this species unless serious measures are taken. Given the low abundance of the species in the wild, exhaustive or repetitive harvesting in the same places entails a risk of its becoming locally extinct in the near future.

3. Utilization and trade

3.1 National utilization

No national utilization. Live specimens are sold to harvesters or directly to exporters.

3.2 Legal international trade

Reference to the number of specimens exported indicates a vigorous trade. Generally, it exceeds 1,000 specimens annually.

Taking into account the experience in the wild with regard to this species, it may be concluded that even the legal trade should be closely re-examined.

3.3 Illegal international trade

No data available.

3.4 Actual or potential trade impacts

No data available.

3.5 Captive breeding for commercial purposes

No data available.

4. Conservation and management

4.1 Legal status

4.1.1 National

No protected legal status. However, it is represented in at least two protected areas where harvesting of specimens for commercial purposes is prohibited.

4.1.2 International

No legal status for conservation or management.

4.2 Species management

4.2.1 Population monitoring

No monitoring.

4.2.2 Habitat conservation

*Uroplatus ebenaui* is known in at least two protected areas (Amber Mountain NP, Ankarafantsika NP).

4.2.3 Management measures

No management measures.

4.3 Control measures

4.3.1 International trade

No data available.

4.3.2 Domestic measures

No data available.

5. Information on similar species

*Uroplatus ebenaui* can be easily distinguished from the other species in its group (the *ebenaui* complex) by its very short tail, by a thin medio-dorsal line on the back of neck, the V line being missing (Mahaviasy, personal communication). Additionally, it can be distinguished from the others by having a very distinct tubercle in the area of the scapular girdle, on each side (Mahaviasy, personal communication). There is no similar species, except for the colouring of both sexes.

6. References

Bauer, A. M. & A. P. Russell, 1989. A Systematic review of the genus *Uroplatus* (Reptilia: Gekkonidae) with comments on its biology. Journal of Natural History, 23:169 – 203.

Glaw, F. & M. Vences, 1994. A Field Guide to the Amphibians and Reptiles of Madagascar. Second edition including mammals and freshwater fish. Moos Druck, Leverkusen and FARBO, Cologne.

MEF, 2001. Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2002. Basic data of the CITES Management Authority, Madagascar for 2002 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2003. Basic data of the CITES Management Authority, Madagascar for 2003 on non-CITES animals. Antananarivo, Madagascar.

**Table**: Exports of *Uroplatus ebenaui* from Madagascar in 2001, 2002 and 2003.

| Year | Species | Germany | Canada | Japan | Switzerland | Holland | France | Taiwan (Province of China) | Netherlands | USA | UK | Italy | Czech Rep. | Spain | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | *U. ebenaui* | 93 | 205 | 48 | 8 | 31 | | | 16 | 991 | 6 | | | 12 | **1410** |
| | | | | | | | | | | | | | | | |
| 2002 | *U. ebenaui* | 51 | 250 | 230 | 4 | 30 | 10 | | | 73 | 10 | | | 15 | **673** |
| | | | | | | | | | | | | | | | |
| 2003 | *U. ebenaui* | 80 | 170 | 56 | 18 | 45 | 10 | 20 | 4 | 602 | 10 | 65 | 16 | | **1096** |

(Source: MEF - Cites Management Authority, Madagascar)

An overall analysis of these export data has shown that over the past three years, the United States has been the principal destination, with a total of 1,666 specimens exported, accounting on its own for 70.3 per cent of exports in 2001, 10.85 per cent in 2002 and 54.93 per cent in 2003. The drop in the rate of exporting in 2002 is purely and simply the result of the political crisis in Madagascar. With a total of 625 specimens exported, Canada is in second place. Additionally, the appearance of new countries and territories every year may be noted, such as France, Italy and Taiwan (Province of China). This indicates an increase in market demand.

## *Uroplatus henkeli* Böhme & Ibisch, 1990

1. Taxonomy

| | | |
|---|---|---|
| 1.1 | Class: | Reptilia |
| 1.2 | Order: | Squamata |
| 1.3 | Family: | Gekkonidae |
| 1.4 | Species: | *Uroplatus henkeli* Böhme & Ibisch, 1990 |
| 1.5 | Common names: | French:<br>English: Henkel's leaf-tailed gecko<br>Spanish:<br>Malagasy: Antaharekiny |

2. Biological parameters

This is an oviparous species. In the male, thin longitudinal stripes can be seen all over the dorsal surface. This characteristic of very pronounced dimorphism between the sexes is typical of the species (Mahaviasy, personal communication). The reproductive period and the duration of incubation are still unknown. The species feeds on insects. Collection and analysis of faecal matter of some specimens in the Ramena region have contributed some additional information on its feeding habits. Residues of chitinous carapaces and organs of *Grillidae* and *Blattidae* and also of Coleoptera have been examined (Mahaviasy, personal communication).

2.1 Country of origin

Madagascar.

2.2 Distribution

*Uroplatus henkeli* has a medium-scale but very fragmented range, being known exclusively in the north-west and extreme north of Madagascar.

2.3 Habitat

It is an arboreal species. It prefers the upper levels of the low-altitude dense ombrophilous forests (Mahaviasy, personal communication).

2.4 Population status

No information is available on population status. The species is not very frequent in the areas where it is found. Seven days of intensive searching unearthed no more than four specimens in any of the regions where this species has been encountered, suggesting a low population density in the wild.

2.5 Population trends

No data available.

2.6 Extent of distribution

No extension has yet been recorded. However, distribution remains fairly fragmented.

2.7 Role of the species in its ecosystem

It is a prey species, and plays a regulating role with regard to the populations of predatory species. Its position within the food chain suggests that it plays an important role in the transfer of energy.

2.8 Threats

The species is able to frequent fairly degraded growth areas, in particular open secondary growth areas, but with a very low population. Thus is has a certain tolerance for degradation of its natural habitat. Harvesting for commercial purposes constitutes a threat to this species unless serious measures are taken. Given the low abundance of the species in the wild, exhaustive or repetitive harvesting in the same places entails a risk of its becoming locally extinct in the near future.

3. Utilization and trade

3.1 National utilization

No national utilization. Live specimens are sold to harvesters or directly to exporters.

3.2 Legal international trade

Reference to the number of specimens exported indicates a vigorous trade. Generally, it exceeds 1,000 specimens annually.

Taking into account the experience in the wild with regard to this species, it may be concluded that even the legal trade should be closely re-examined.

3.3 Illegal international trade

No data available.

3.4 Actual or potential trade impacts

No data available.

3.5 Captive breeding for commercial purposes

There is captive breeding for commercial purposes, but only in small numbers. Consequently, this does not reduce the number of specimens being exported from Madagascar.

4. Conservation and management

4.1 Legal status

4.1.1 National

No protected legal status. However, it is represented in at least two protected areas where harvesting of specimens for commercial purposes is prohibited.

4.1.2 International

No legal status for conservation or management.

4.2 Species management

4.2.1 Population monitoring

No monitoring.

4.2.2 Habitat conservation

*Uroplatus henkeli* is known in two protected areas (Manongarivo RNI, Tsaratanana RNI).

4.2.3 Management measures

No management measures.

4.3 Control measures

4.3.1 International trade

No data available.

4.3.2 Domestic measures

No data available.

5. Information on similar species

*Uroplatus henkeli* can be distinguished easily by its well-developed fringes under the axillae, and by the presence of fringes only on the outer side of the tibia (Mahaviasy, personal communication). There is no similar species.

6. References

Bauer, A. M. & A. P. Russell, 1989. A Systematic review of the genus *Uroplatus* (Reptilia: Gekkonidae) with comments on its biology. Journal of Natural History, 23:169 – 203.

Glaw, F. & M. Vences, 1994. A Field Guide to the Amphibians and Reptiles of Madagascar. Second edition including mammals and freshwater fish. Moos Druck, Leverkusen and FARBO, Cologne.

MEF, 2001. Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2002. Basic data of the CITES Management Authority, Madagascar for 2002 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2003. Basic data of the CITES Management Authority, Madagascar for 2003 on non-CITES animals. Antananarivo, Madagascar.

**Table**: Exports of *Uroplatus henkeli* from Madagascar in 2001, 2002 and 2003.

| Year | Species | Germany | Canada | Japan | Switzerland | Holland | Italy | El Salvador | Netherlands | USA | UK | Australia | Indonesia | Spain | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | *U. henkeli* | 129 | 198 | 54 | | 10 | | | 30 | 792 | 21 | | 40 | 18 | **1292** |
| | | | | | | | | | | | | | | | |
| 2002 | *U. henkeli* | 43 | 243 | 190 | 8 | 10 | | 30 | | 332 | 8 | 42 | 40 | 20 | **966** |
| | | | | | | | | | | | | | | | |
| 2003 | *U. henkeli* | 135 | 68 | 92 | 18 | 40 | 10 | 20 | 4 | 737 | 10 | | | | **1134** |

(Source: MEF - Cites Management Authority, Madagascar)

An overall analysis of these export data has shown that over the past three years, the United States has been the principal destination, with a total of 1,861 specimens exported, accounting on its own for 61.3 per cent of exports in 2001, 34.36 per cent in 2002 and 65 per cent in 2003. The slight drop in the rate of exporting in 2002 is purely and simply the result of the crisis in Madagascar. Canada is in second place. Although certain countries were not active last year, the appearance of new countries every year may also be noted, such as El Salvador, Switzerland and Italy. This indicates an increase in market demand.

## *Uroplatus phantasticus* Boulenger, 1888

1. Taxonomy

   1.1 Class: Reptilia

   1.2 Order: Squamata

   1.3 Family: Gekkonidae

   1.4 Species: *Uroplatus phantasticus* Boulenger, 1888

   1.5 Common names: French:
   English: Leaf-tailed gecko
   Spanish:

2. Biological parameters

   The species is already active towards the end of the dry season (Mahaviasy, personal communication). It is oviparous. Reproduction starts at the beginning of the rainy season. The species feeds on insects.

   2.1 Country of origin

   Madagascar.

   2.2 Distribution

   *Uroplatus phantasticus* has a medium-scale but fragmented range, and is known in eastern Madagascar.

   2.3 Habitat

   It is an arboreal species, preferring the rainforest of the eastern part of the country (Mahaviasy, personal communication).

   2.4 Population status

   No information is available on population status. The species is not very frequent in the areas where it is found. Seven days of intensive searching unearthed no more than five specimens in any of the regions where this species has been encountered, suggesting a low population density in the wild.

   2.5 Population trends

   No data available.

   2.6 Extent of distribution

   Distribution remains fairly fragmented.

   2.7 Role of the species in its ecosystem

   It is a prey species, and plays a regulating role with regard to the populations of predatory species. Its position within the food chain suggests that it plays an important role in the transfer of energy.

2.8 Threats

The species is incapable of colonizing a fairly degraded growth area, and thus it does not tolerate the degradation of its natural habitat. Harvesting for commercial purposes constitutes a threat to this species unless serious measures are taken. Given the low abundance of the species in the wild, exhaustive or repetitive harvesting in the same places entails a risk of its becoming locally extinct in the near future.

3. Utilization and trade

3.1 National utilization

No national utilization. Live specimens are sold to harvesters or directly to exporters.

3.2 Legal international trade

Reference to the number of specimens exported indicates that this is among the species most vigorously traded.

Taking into account the experience in the wild with regard to this species, it may be concluded that even the legal trade should be closely re-examined.

3.3 Illegal international trade

No data available.

3.4 Actual or potential trade impacts

No data available.

3.5 Captive breeding for commercial purposes

No data available.

4. Conservation and management

4.1 Legal status

4.1.1 National

No protected legal status. It is, however, represented in at least three protected areas where the harvesting of specimens for commercial purposes is prohibited.

4.1.2 International

No legal status for conservation or management.

4.2 Species management

4.2.1 Population monitoring

No monitoring.

4.2.2 Habitat conservation

*Uroplatus phantasticus* is known in at least three protected areas (Tsaratanana RNI, Marojejy NP, Anjanaharibe SR, etc.).

4.2.3 Management measures

No management measures.

4.3 Control measures

4.3.1 International trade

No data available.

4.3.2 Domestic measures

No data available.

5. Information on similar species

*Uroplatus phantasticus* can be easily distinguished from other species by an underside featuring small black marks in the form of dots, by the absence of lateral fringed flaps of skin under the axilla, and by tibiotarsal fringes on each side (Mahaviasy, personal communication). There is no similar species, except for the colouring of both sexes.

6. References

Bauer, A. M. & A. P. Russell, 1989. A Systematic review of the genus *Uroplatus* (Reptilia: Gekkonidae) with comments on its biology. Journal of Natural History, 23:169 – 203.

Glaw, F. & M. Vences, 1994. A Field Guide to the Amphibians and Reptiles of Madagascar. Second edition including mammals and freshwater fish. Moos Druck, Leverkusen and FARBO, Cologne.

MEF, 2001. Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2002. Basic data of the CITES Management Authority, Madagascar for 2002 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2003. Basic data of the CITES Management Authority, Madagascar for 2003 on non-CITES animals. Antananarivo, Madagascar.

**Table**: Exports of *Uroplatus phantasticus* from Madagascar in 2001, 2002 and 2003.

| Year | Species | Germany | Canada | Japan | Switzerland | Holland | France | El Salvador | Netherlands | USA | UK | Italy | Spain | Thailand | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | *U. phantasticus* | 147 | 223 | 105 | 7 | 46 | | | 28 | 1174 | 12 | | 18 | 10 | **1770** |
| | | | | | | | | | | | | | | | |
| 2002 | *U. phantasticus* | 33 | 290 | 270 | 10 | 40 | 10 | | | 650 | 3 | | 25 | | **1331** |
| | | | | | | | | | | | | | | | |
| 2003 | *U. phantasticus* | 261 | 200 | 114 | 18 | 71 | 30 | 30 | 12 | 1157 | 16 | 40 | | 24 | **1973** |

(Source: MEF - Cites Management Authority, Madagascar)

An overall analysis of these export data has shown that over the past three years, the United States has been the principal destination for the specimens exported, accounting on its own for 64.4 per cent of exports in 2001, 50.5 per cent in 2002 and 63.25 per cent in 2003. The drop in the rate of exporting in 2002 is purely and simply the result of the crisis in Madagascar. Additionally, the appearance of new countries may be noted, such as El Salvador, Thailand and Italy. This indicates an increase in market demand.

## *Uroplatus sikorae* Boettger, 1913

1. Taxonomy

| | | |
|---|---|---|
| 1.1 | Class: | Reptilia |
| 1.2 | Order: | Squamata |
| 1.3 | Family: | Gekkonidae |
| 1.4 | Species: | *Uroplatus sikorae* Boettger, 1913 |
| 1.5 | Common names: | French:<br>English: Mossy leaf-tailed gecko<br>Spanish:<br>Malagasy: Razamboay |

2. Biological parameters

This is an oviparous species. Little information is available on reproductive patterns. Young may be encountered in their natural environment around the beginning of March. Reproduction might take place in the middle of the rainy season. The species feeds on insects, notably *Blattidae* and *Grillidae*.

2.1 Country of origin

Madagascar.

2.2 Distribution

*Uroplatus lineatus* has a wide but fragmented range, being known in western, eastern and northern Madagascar.

2.3 Habitat

It is an arboreal species. It frequents the upper limit of low-altitude forests; and mainly medium-altitude dense ombrophilous forests, (Mahaviasy, personal communication).

2.4 Population status

No information is available on population status. The species is not very frequent in the areas where it is found. In seven days of intensive searching no more than six specimens were found in the areas where this species is encountered. This situation suggests a low population density in the wild.

2.5 Population trends

No data available.

2.6 Extent of distribution

In addition to the localities cited in Glaw and Vences, 1994, and in Rakotomalala and Raselimanana, 2003, this species was recently in Lohanandroranga (Raxworthy *et al.*, unpublished). However, distribution remains fairly fragmented.

2.7 Role of the species in its ecosystem

It is a prey species, and plays a regulating role with regard to the populations of predatory species. Its position within the food chain suggests that it plays an important role in the transfer of energy.

2.8 Threats

The species is capable of colonizing a fairly degraded growth area, and thus it tolerates degradation of its natural habitat to a certain degree. However, harvesting for commercial purposes constitutes a threat to this species unless serious measures are taken. Given the low abundance of the species in the wild, exhaustive or repetitive harvesting in the same places entails a risk of its becoming locally extinct in the near future.

3. Utilization and trade

3.1 National utilization

No national utilization. Live specimens are sold to harvesters or directly to exporters.

3.2 Legal international trade

Reference to the number of specimens exported would tend to indicate that it is not exploited in low numbers. Moreover, the number of specimens exported increased sharply in 2003.

Taking into account the experience in the wild with regard to this species, it may be concluded that even the legal trade should be closely re-examine.

3.3 Illegal international trade

No data available.

3.4 Actual or potential trade impacts

No data available

3.5 Captive breeding for commercial purposes

No data available.

4. Conservation and management

4.1 Legal status

4.1.1 National

No legal protected status. It is, however, represented in at least three protected areas where the harvesting of specimens for commercial purposes is prohibited.

4.1.2 International

No legal status for conservation or management.

4.2 Species management

4.2.1 Population monitoring

No monitoring.

4.2.2 Habitat conservation

*Uroplatus sikorae* is known in at least three protected areas (Tsaratanana RNI, Marojejy NP, Anjanaharibe SR, etc.).

4.2.3 Management measures

No management measures.

4.3 Control measures

4.3.1 International trade

No data available

4.3.2 Domestic measures

No data available.

5. Information on similar species

*Uroplatus sikorae* can be easily distinguished from other species by an underside featuring small black marks in the form of dots, by the absence of lateral fringed flaps of skin under the axilla, and by tibiotarsal fringes on each side (Mahaviasy, personal communication). There is no similar species, except for the colouring of both sexes.

8. References

Bauer, A. M. & A. P. Russell, 1989. A Systematic review of the genus *Uroplatus* (Reptilia: Gekkonidae) with comments on its biology. Journal of Natural History, 23:169 – 203.

Glaw, F. & M. Vences, 1994. A Field Guide to the Amphibians and Reptiles of Madagascar. Second edition including mammals and freshwater fish. Moos Druck, Leverkusen and FARBO, Cologne.

MEF, 2001. Basic data of the CITES Management Authority, Madagascar for 2001 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2002. Basic data of the CITES Management Authority, Madagascar for 2002 on non-CITES animals. Antananarivo, Madagascar.

MEF, 2003. Basic data of the CITES Management Authority, Madagascar for 2003 on non-CITES animals. Antananarivo, Madagascar.

Rakotomalala, D & A.P. Raselimanana, 2003. Les amphibiens et les reptiles des massifs de Marojejy, d'Anjanaharibe-Sud et du couloir forestier de Betaolana, In *Nouveaux résultats d'inventaires biologiques faisant référence à l'altitude dans la région des massifs montagneux de Marojejy et d'Anjanaribe-Sud*. S.M. Goodman and L. Wilmé (eds.). Centre d'Information et de Documentation Scientifique et Technique, Antananarivo, Recherches pour le Développement, Série Sciences biologiques, No. 19: 146-201.

**Table**: Exports of *Uroplatus sikorae* from Madagascar in 2001, 2002 and 2003

| Year | Species | Germany | Canada | Japan | Switzerland | Holland | France | Taiwan (Province of China) | Netherlands | USA | UK | Italy | Czech Rep. | Thailand | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | *U. sikorae* | 158 | 198 | 92 | 24 | 15 | 18 | | 24 | 987 | 10 | | | | **1532** |
| | | | | | | | | | | | | | | | |
| 2002 | *U. sikorae* | 10 | 390 | 210 | 4 | 15 | 10 | | | 680 | 28 | | | | **1347** |
| | | | | | | | | | | | | | | | |
| 2003 | *U. sikorae* | 151 | 140 | 74 | 18 | 70 | 20 | 20 | 20 | 1157 | 10 | 85 | 40 | 24 | **1829** |

(Source: MEF - Cites Management Authority, Madagascar)

An overall analysis of these export data has shown that over the past three years, the United States has been the principal destination for the specimens exported, accounting on its own for 64.4 per cent of exports in 2001, 50.5 per cent in 2002 and 63.25 per cent in 2003. The drop in the rate of exporting in 2002 is purely and simply the result of the crisis in Madagascar. Additionally, the appearance of new countries and territories may be noted, such as Taiwan (Province of China), Thailand, Italy and the Czech Republic. This indicates an increase in market demand.