

AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

A. PROPOSAL

Inclusion of Achatinella spp. in Appendix I.

B. PROPONENT

The Kingdom of the Netherlands.

C. SUPPORTING STATEMENT

1. Taxonomy

11. Class: Gastropoda
12. Order: Stylommatophora
13. Family: Achatinellidae
14. Species: Achatinella spp. Swainson, 1828

The genus consists of 41 species, of which 22 have been declared extinct. The remaining 19 species have received endangered status by the U.S. Federal Government in 1981.

15. Common Names: English: little agate snails,
Oahu tree snails
French:
Spanish:

16. Code Numbers:

2. Biological Data

21. Distribution: The genus is endemic to Oahu Island (Hawaii, U.S.A.), where it occurs in mountainous forests at altitudes from 300 m. (Koolau) to 1100 m. (Waianae). The genus' original distribution, which was far more widespread in former times, has been reduced by severe habitat destruction, such as clearing of lowland vegetation by logging, grazing or farming. Reforestation rarely includes native species and never provides suitable habitat for relict Achatinella populations.
22. Population: Estimates are difficult to make. However rough estimates of the size of the population of remaining Achatinella species were made prior to the inclusion of the genus in the U.S. Endangered Species Act (Hart, 1979*, see Appendix to this proposal).

Reduction of the original populations was, next to habitat destruction, caused by the introduction of numerous predators (such as rats, introduced in the 1870's, and a rapidly expanding population of the North American carnivorous gastropod Euglandia rosea, introduced in the mid-1950's). A very important factor, that caused great damage to the snail populations was the extravagant removal by collectors. The fact that populations were, and still are, rapidly declining has been known for more than 150 years.

Recently, a new, not yet known, source of mortality in the snails has been discovered (Hadfield, 1985 in press).

23. Habitat: The species are arboreal, and in most cases dependent on native trees. The snails are mostly nocturnal.

The species are quite large at birth, but show very slow growth, late maturity and a short reproductive life of perhaps six years, with often only one offspring per year (Hadfield and Mountain, 1981). It has been calculated that for small populations of Achatinella mustelina, such as those isolated in single trees, a mortality factor that removes 20% would cause the population to decline and presumably go extinct. The repeated and selective collection which occurred in former times, has been an almost certain cause of extinction of a number of populations (Hadfield, 1985).

3. Trade Data

31. National Utilization: The shells were used by early Hawaiians as body ornaments and for barter. From the middle of the 19th century to the first decades of the 20th century, hundreds of thousands of shells have been collected by numerous people. A famous example is the collection of Rev. John T. Gulick, who collected 44,500 shells in three years, from 1851-1853. Another collection, the Meinecke collection, amassed more than 116,000 specimens. In a number of cases, severe reduction or even extinction of species can be determined as a direct result of mass collections. For example, in the case of the severe reduction of A. bellua and A. bulimoides and the extinction of A. rosea (Hadfield, 1985). Unfortunately, this collection still continues by a number of people, while most of the populations sustain no collection at all (E.A. Kay, in litt, 1985).

Occasionally, there occur advertisements in malacological bulletins of people offering their collections of Achatinella for sale. Some records are presented below.

About five years ago, several hundred achatinellids, collected at the beginning of the century, were offered for sale during the sale of household effects. A notice in Hawaiian Shell News, September 1976, requested specimens of Achatinella mustelina (E.A. Kay, in litt, 1985).

32. Legal International Trade: The species is included in the U.S. Endangered Species Act; therefore, at present, legal international trade does not exist (see 41).
33. Illegal Trade: Unknown to proponent.
34. Potential Trade Threats: The genus includes some of the most beautiful, varied and highly developed land snails in the world and it represents a wanted collectors-item. Only a small sampling programme could lead to further population collapses. Many of the actual populations are still easily accessible and there exists increasing pressure, on densely populated Oahu Island, on remaining native forests for recreational use.

The large number of snails which have been collected in the past is an indication of its value to collectors. There is, however, an apparent gap between the large number of collected snails, and the fact that only limited trade can be recorded.

4. Protection Status

41. National: The genus has been included as an endangered species under the U.S. Endangered Species Act, since 1981. Import and export of Achatinella is thus disallowed.
42. International: The genus appears on the IUCN list of the twelve most threatened animals (1985). It also appears in the IUCN Invertebrate Red Data Book (1983).
43. Additional Protection Needs: Inclusion in Appendix I of the Convention supports the purpose of stopping commercial trade (as is done in the U.S. Endangered Species Act). It will increase international awareness of the rapid loss of this most vulnerable segment of Hawaiian endemic fauna and make inhabitants of Hawaii aware of their task to preserve the snails.

5. Information on Similar Species

Other achatinellid genera, like Partulina and Newcombia are probably in no better condition. P. confusa was known from a population in the Waimea Plain, of possibly 300,000 in 1903. The same population had disappeared in 1943 (Hadfield, 1985).

There are no look-alike snails in Hawaii.

6. Comments from Countries of Origin

7. Additional Remarks

As a unique example of island speciation, the genus has been a precious study object for Darwinists and remains an important source for the study of island and evolutionary biology.

8. References

This proposal has been compiled from the following publications:

Hadfield, M.G. and B.S. Mountain, 1981. A field study of a vanishing species, Achatinella mustelina (Gastropoda, Pulmonata), in the Waianae Mountains of Oahu, Pac. Sci., 34(4): 345-358.

Hadfield, M.G., 1985. in press. Extinction in Hawaiian Achatinelline Snails. Malacologia.

Hart, A.D. 1978. The onslaught against Hawaiian tree snails. Natural History 87 (10): 46-57.

Wells, S.M., R.M. Pyle and N.M. Collins, 1983. The IUCN Invertebrate Red Data Book. Gland, Switzerland.

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Ms. Susan M. Wells, Conservation Monitoring Centre, Cambridge.

References cited, but not seen personally:

Hart, A.D., 1979. A survival status report on the endemic Hawaiian tree snail genus Achatinella from Oahu. Report to OES, USDI.

Kondo, Y., 1970. Extinct land molluscan species. Colloquium on endangered species of Hawaii.