

INVERTEBRATE PETS AND THE FLORIDA DEPARTMENT OF  
AGRICULTURE AND CONSUMER SERVICES

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ABSTRACT

The Division of Plant Industry (DPI) of the Florida Department of Agriculture and Consumer Services now regulates importation into Florida of all arthropods except Crustacea, no longer just those of actual or potential agricultural importance. The operating law is Chapter 581.083 of the Florida Statutes, and the operating procedure is Title 5B-57.004 of the Florida Administrative Code. The current law was proposed because of importation by the pet trade of species that did not already occur in Florida and were potentially harmful to the environment. The Division requires specimens (for confirmation of identification) to accompany applications for permits.

Key Words: Exotic species, introduction, Florida, permits, insects

RESUMEN

La División de la Industria de los Vegetales (DPI) del Departamento de Agricultura y Servicios al Consumidor de la Florida, ahora regula la importación a la Florida de todos los artrópodos (excepto crustáceos) y no únicamente de aquellos con importancia real o potencial para la agricultura. La ley es el Capítulo 581.083 de los Estatutos de la Florida, y el procedimiento operativo es el Título 5B-57.004 del Código Administrativo de la Florida. La ley actual fué propuesta debido a la importación por los comerciantes de mascotas de especies que no existen naturalmente en Florida y que potencialmente pueden ser dañinas al medioambiente. La División requiere que las solicitudes de permisos sean acompañadas por especímenes (para confirmar la identificación).

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For the pet industry the days of "how much is that doggy in the window" are long gone. Now it's "how much is that tarantula in the window", and the one with the waggly tail may very well be a scorpion.

In the ever-increasing search for novelty, more and more exotic invertebrates are being offered for sale in pet stores. A perusal of price lists from pet suppliers reveals tarantulas, scorpions and solpugids, whip scorpions and wolf spiders, centipedes and millipedes, mantids and walking sticks, spider wasps and velvet ants, dung beetles and blister beetles that originate from 4 continents, Africa, Asia, Central America, and South America. There are 108 species of tarantulas alone in the pet trade.

In most of the continental United States, these tropical arthropods are relatively benign curios, but in Florida—especially subtropical south Florida—they may pose unknown agricultural or environmental hazards. This brings such exotic arthropods directly under the purview of the Florida Department of Agriculture and Consumer Services (hereafter referred to as department).

For plants and vertebrates the proportion of exotics in south Florida is alarming (Ewel 1986). The invertebrates are much more poorly known, but Frank & McCoy

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(1992) listed 271 immigrant species of insects reported from Florida in a 20-year period. For this reason, the Division of Plant Industry of the department now regulates the importation of all arthropods and other possible invertebrate plant pests into the state. This seems to be an unprecedented step by a state department of agriculture. Although the department has regulated the importation of plant pests and parasitoids of plant pests for years, mostly for research or biological control purposes (Denmark & Porter 1973), the regulation of the pet trade in arthropods is a whole new ballgame, and policies and procedures are still evolving as the department gains experience.

#### HISTORY

The story begins on 30 May 1989 with a newspaper article in the Tampa Tribune (Chen 1989a). The cute feature article reported on a Tampa pet store selling Madagascan hissing cockroaches (*Gromphadorhina* sp.) for pets (Fig. 1). The pet store had sold six of the roaches for \$6.00 a piece. The news story had two results: first, the pet store was inundated by telephone calls from people wanting to buy a roach; second, the Commissioner of Agriculture's office was receiving calls from people wanting to know how roaches could be sold as pets in Florida, a state renowned for its roach problems (Chen 1989b).

Some quick telephone calls found that neither the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) nor the U.S. Public Health Service was interested in the Madagascan hissing cockroach. Concerned over the possibility that yet another roach might be added to the state's non-native roach fauna, and acting under its general statutory authority, the department issued a stop sale order to the pet store two days after the first newspaper story appeared (Chen 1989b). In the meantime, the pet store had sold the remaining six roaches it had in stock. Four of the roaches were sold to an unidentified man who released them in his back yard because he was afraid the department would hurt them (Chen 1989c). All of this, of course, was followed gleefully in the press. The publicity seemed to fuel the popularity of the roaches and the next thing we knew a pet store in Miami was selling the former \$6.00 Madagascan hissing cockroaches for \$19.95. The roaches were confiscated by department inspectors (United Press International 1989).

Several things became apparent during this time. The new attention on the pet trade revealed that the Madagascan hissing cockroach was literally just the tip of an arthropod iceberg hiding in pet stores around the state. Many exotic arthropods were being imported and sold as either pets or pet food. Although several Federal and state statutes apply to plant-feeding or disease-vectoring insects, there were gaping loopholes that allowed such things as roaches and spiders to be imported and distributed with virtually no regulation.

It is well known that Florida, particularly south Florida, is especially vulnerable to the establishment of exotic organisms (Ewel 1986). The pet trade is responsible for many of those problems, and certain aquarium plants are now prohibited from being sold in Florida. The Florida Game & Fresh Water Fish Commission regularly inspects pet stores and is responsible for issuing permits for the sale of exotic vertebrates. The question naturally arose: Is there an arthropod equivalent of melaleuca, walking catfish, or cane toad being sold in pet stores?

The department's enabling legislation, which authorizes the regulation of plant pests and parasites of plant pests, was not adequate for this problem. In January 1990, House Bill 2163 was introduced to amend Chapter 581.083 of the Florida Statutes. It passed on 29 May and became effective on 1 October. The amendment<sup>1</sup> and

Rule 5B-57<sup>2</sup> give the department the authority to regulate any arthropod (with the exception of crustaceans) and require a permit to import into the state or distribute any arthropod that may pose a threat to the agricultural industry or to the environment.

#### CURRENT SITUATION

The department has now had more than a year of experience with the new procedure, and the arthropod iceberg seems to be getting bigger and bigger. With some exceptions, the department has concentrated on regulating suppliers and breeders rather than individual pet stores. Department inspectors visited pet stores informing owners of the new regulations and gathering addresses of suppliers who were contacted and notified of the new requirements.

The Florida Game & Fresh Water Fish Commission, whose personnel regularly inspect pet stores, has been reluctant to expand its inspections to cover invertebrates, but it did supply the department with a list of 3700 businesses and individuals in Florida permitted by the Commission to have and sell exotic vertebrates. This list was the basis of an informational mailing. In the past year, over 70 permit applications were submitted for invertebrate pets; most of those came in the two months following the informational mailing.

Permit applications come from zoos, museums, and schools, as well as from distributors, breeders, and pet stores. For the most part, permits are handled on a case-by-case basis, and the proposed use of the organism plays an important part in the decision-making process. For example, a permit is much more likely to be issued for a zoo or museum exhibit than for retail sale. Several criteria are considered in reaching a recommendation. The organism should not be a threat to the state's agricultural industry. It should not be a threat to the public health. If it is likely to become established under Florida climatic conditions, it should not compete with native species.

Based on these criteria, there are certain organisms that either would not be permitted or would be permitted under very tight restrictions. Among these are: plant-feeding terrestrial snails (we are regularly contacted by people wanting to farm brown garden snails); all cockroaches; scorpions of the family Buthidae; stick insects and grasshoppers; all millipedes. Desert tarantulas are not considered a problem, but the genera *Avicularia* and *Phormictopus*, which contain arboreal species, are restricted. The house cricket, *Acheta domesticus*, has been sold as fish bait and reptile food for

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<sup>1</sup>Florida Statutes 581.083. Introduction or release of plant pests, noxious weeds, or organisms affecting plant life. —The introduction into or release within this state of any plant pest, noxious weed, or genetically engineered plant or plant pest, or any other organism which may directly or indirectly affect the plant life of this state as an injurious pest, parasite, or predator of other organisms, or any arthropod, is prohibited, except under special permit issued by the department through the division, which shall be the sole issuing agency for such special permits. Except for research projects approved by the department, no permit for any parasitic organism shall be issued unless the department has determined that the parasite, predator, or biological control agent is a target organism or plant specific and not likely to become a pest of plants or other beneficial organism. The department may rely on the findings of the Department of Natural Resources and the United States Department of Agriculture in making any determination about organisms used for the biological control of aquatic plants.

<sup>2</sup>Florida Administrative Code 5B-57.004 Possession or Movement of Arthropods, Plant Pests, or Noxious Weeds Regulated by the Department.

(1) It is unlawful to introduce, possess, move, or release any arthropod or noxious weed regulated by the department except under permit issued by the department. No permit shall be issued unless the department has determined that the arthropod or noxious weed can be contained to prevent escape into the environment or that it will not pose a threat to agriculture, beneficial organisms, or the environment or become a public nuisance...



Fig. 1. Madagascan hissing roaches sold by pet stores. Photo courtesy of Associated Press Photos.

decades; it has not become established in the wild in Florida and is not considered a problem. Generally, exotic insects, even pest species, are permitted if they are already established in the state.

#### Procedures

Arthropods falling under the jurisdiction of the USDA must obtain a USDA/APHIS PPQ form 526, which is sent to Hyattsville, MD with the department's recommendation either to approve or disapprove. Arthropods not falling under the jurisdic-

tion of the USDA are covered under the department's PI-208 permit, which is handled in Gainesville. All permit applications must be submitted with voucher specimens of the species to be imported. As I will discuss later, this is an important step since one of the most frequent problems encountered is misidentification by the applicant. The final decision on approval is made by the division's assistant director, acting on the recommendation from the technical sections in the Bureau of Entomology, Nematology, and Plant Pathology.

### Specific Cases

The potential hazards of invertebrate pets are not entirely theoretical. In the 1960s, a Miami family carried two giant African snails (*Achatina fulica* Bowditch) home with them as pets from a trip to Hawaii. Eventually they tired of the snails and released them in their back yard. It took a million-dollar campaign by the department to eradicate the resulting infestation. Just recently, a pet store in Tallahassee was discovered to have another, related giant African snail (*Archachatina marginata* (Swainson)) for sale. The supplier was identified and through the supplier several other Florida pet stores were found to be carrying the snail in stock.

In another case, five specimens of a giant Neotropical grasshopper (*Tropidacris c. cristata* (L.)) were collected over a period of about a month in 1992 in a small area in Broward County. How the grasshoppers arrived in central Broward County has never been determined, but since this is one of the largest and most spectacular grasshoppers in the world, it was suspected that they were escapees from a shipment destined for sale in the pet trade.

To illustrate the potential problems inherent in the unregulated trade of exotic invertebrates, I will discuss three specific cases with which the department has dealt since the new rules became effective.

*Blaberus roaches.* The New World genus *Blaberus* contains several species of very large roaches that are popular in zoo and educational displays, and, it turns out, as reptile food. Two species, *Blaberus craniifer* Burmeister, the Cuban death's head cockroach, and *Blaberus discoidalis* Serville occur in extreme south Florida. Whether they are native, are the result of natural dispersal, or were hitchhikers in cargoes is open to debate, but both are widely distributed in the Caribbean and may be considered a natural component of the Florida Keys fauna (Atkinson et al. 1990). A Tampa zoo requested permission to maintain its colony of *Blaberus giganteus* (L.), which were being used as reptile food and which originally had been obtained from a well-known biological supply house. Examination of voucher specimens from the zoo revealed that the species in question was neither *Blaberus giganteus* nor *Blaberus craniifer*. Instead it was most similar to an unidentified species of *Blaberus* from Ecuador in the Florida State Collection of Arthropods. In this case we reached a compromise by which the zoo destroyed its colony of exotic roaches and the department supplied specimens of *Blaberus craniifer* to start a new culture. By the way, *Blaberus giganteus* is attracted to light. If central Florida residents are upset at the appearance at their lights of the Asian cockroach (*Blattella asahinai* Mizokubo), think of their reaction to the arrival of a cockroach the size of a small bird.

*Zophobas beetles.* Many pet stores carry giant mealworms. These are the larvae of a large darkling beetle that are popular as food for pet birds and especially lizards. They are also sold as fish bait. They are said by suppliers to belong to the species *Zophobas morio* (Fabricius), which has been listed from south Florida and which is well represented in the Florida Collection of Arthropods with specimens from the lower Keys. Specimens of this genus are virtually unidentifiable, but according to Charles Triplehorn (Museum of Biological Diversity, Columbus, OH) the proper name of the

Florida species seems to be *Zophobas rugiceps* Kirsch, which is widely distributed in the Caribbean. Unfortunately, the species being sold is not conspecific with the Florida examples and may have originated in Central or South America. The department has in the past denied permits to suppliers to import this beetle but, as it is easy to culture, many pet stores and individuals have their own breeding colonies. Its pest potential is unknown but it is related to several stored-products pests.

*Chilecomadia* moths. "Butterworms" are advertised by the distributor as "the softest worm" and are sold as reptile food in the United States and Europe. In his permit application, the importer spelled the scientific name incorrectly, did not know the family, claimed the larvae were found under rocks in Chile, and that they would immediately die if removed from refrigeration. Eventually, butterworms turned out to be the caterpillars of a Chilean cossid moth, *Chilecomadia morrei* Silva Figueroa. Removed from refrigeration, they lived at least three weeks and fed readily on artificial diet. Cossids are wood-borers as larvae, and recorded hosts for this species in Chile include willows. A related Chilean species is recorded from willow, acacia, and apple. The permit was denied.

#### CONCLUSION

There is no doubt that invertebrate pets are growing in popularity and that they pose a real threat to Florida's agriculture and environment. Efforts by the Florida Department of Agriculture and Consumer Services to regulate the importation into the state of exotic arthropods and other possibly harmful invertebrates will minimize, but hardly eliminate, the hazards.

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