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## **Managing the import of vertebrates to Israel to prevent invasive species**

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### **INTRODUCTION**

Israel is a very small country - ca. 21,000 km<sup>2</sup>, which is about half the size of the Netherlands or about the size of the state of New Jersey. Because it sits at the junction of three continents it has a rich diversity of ecological zones and bio-geographical habitats, making it susceptible to invasion by a wide variety of exotic wildlife species.

Since the country's establishment in 1948, 22 species of exotic terrestrial vertebrates have become established in Israel (Hatzofe and Nemptzov, 2004): 2 mammals, 18 birds, and 2 reptiles (no amphibians). The vast majority were escapees from commercial breeders or public zoos; only 4 cases are from the pet industry; which is not the case in many other countries (Burgiel et al. 2006).

The government's wildlife and nature conservation agency, the Israel Nature and Parks Authority (INPA), works to prevent any future invasions of wildlife, using controls at borders and ports of entry, enforcement of conditions for keeping exotic wildlife by breeders and zoos, public education, fast response for capturing escaped animals, and a risk assessment program (below) for new imports. The responsibility for aquatic species, invertebrates and all plants is in the hands of a separate government agency. Current efforts are underway to unify the efforts by these agencies in a new National Invasive Species Project.

### **ISRAEL'S RISK ASSESSMENT PROGRAM**

After common mynahs (*Acridotheres tristis*) became established in Israel in the late 1990's, the INPA established a new system for risk assessments for import of vertebrates for the pet industry, which was based initially on an Australian system (Bomford 1991, 2003), but is much simplified.

Israeli law requires a valid INPA import permit for all wildlife coming into the country. Israeli law places the onus upon the government to prove how importation may pose a substantial risk to the country's natural or protected resources; the importer does not have to prove that such trade is risk-free. Importers of wildlife for the pet trade submit requests to INPA for permits to import live wildlife. I then conduct a risk assessment by gathering detailed biological information on the species and its ecological requirements in nature, via a set of questions, as follows:

- Could the species survive and breed in Israel's climate?
- Does the species have what to eat all year round in Israel?

- Has this species (or a close relative) invaded successfully elsewhere?
- Could the species hybridize with any Israeli species?
- Could this species pose a threat to agriculture, human health, or other species or ecosystems in Israel?
- Could this species provide any benefit to humans or nature if it became established in the wild in Israel?
- Would it be feasible to eradicate it if it were to become established in the wild?

The answers are not scored or weighted (such as the scoring method of Smallwood & Salmon (1992)), but rather I use the information to prepare an initial scientific opinion. I assign the species initially to one of 3 risk categories: Low, Medium, or High Risk. Species that have previously invaded habitats similar to those in Israel (especially Mediterranean ecosystems) are immediately classified as having High Risk. The initial opinion and summarization of the risk assessment data are then refereed by three ecologists, and the species' risk category is finally decided upon by consensus.

The species' risk category and the scientific opinion are posted on the INPA web site. Once a year, a public hearing is held on the internet so that comments may be submitted in writing to the INPA by the public about the decisions or the opinions or the Black and White Lists (see below). The comments are checked for accuracy and after consultation with colleagues (or the person submitting the comment), I sometimes change a species' risk category (sometimes stricter and sometimes more lenient). To date, none of my opinions or decisions has been challenged in court. Many of the comments are from collectors or importers seeking a more a lenient categorization, but most comments are from scientists or wildlife proponents encouraging the INPA to allow the import of fewer species.

Only species with Low Risk may be imported and sold as pets. Medium Risk species may only be kept in mini-zoos, and by breeders or collectors. High Risk species may be imported and held only at a special research or conservation institutions (such as universities and leading zoos). Since beginning the system in the mid-1990's, there have been no new cases of invasive vertebrates in Israel.

### **BLACK LIST, WHITE LIST OR BOTH?**

Some countries publish a White List of species which may be imported for the pet trade, while others publish a Black List of those that are not allowed for the pet trade. There are advantages and disadvantages to each approach, but the first method seems preferable, i.e., to initially disallow all species; such that only those that have been checked and approved would appear on a (short) White List of species allowed for the pet trade. Having only a Black List of disallowed species implies that all others species are permitted, which can readily lead to a variety of problems.

Israel publishes both a Black and White List, but in general Israel works according to the White List system mentioned above, where all species are initially disallowed unless they have been assessed for risk and been designated as Low Risk. Only Low Risk species appear on the White List, which includes all the species permitted for import and trade to the general public. In Israel's case, the Black List is a list of those species that have already undergone a risk assessment and are classified as Medium or High Risk, and are therefore deemed not suitable for the pet trade.

## **PROACTIVE RISK ASSESSMENT**

According to reports from pet store owners, in most cases where a potential customer enters a pet store, they have not determined in advance which specific species they want to buy. (This is not the case for collectors or breeders, but they are a small segment of the industry). In general, if a customer comes to the store and intends to buy a parrot or a snake, he will almost always end up buying one from among the species that the store has available. If the store offers for sale only Low Risk species, it won't matter to most customers that High Risk species aren't being offered.

Wildlife importers generally seek to import attractive species that are readily available on the world market, and they would be satisfied importing Low Risk species if the marketability were no different from that of High Risk species. The INPA has therefore begun working together with Israeli wildlife importers and major pet shop owners, in order to find attractive species on the world market that pose Low Risk for them to import in lieu of ones on the Black List. This new cooperative initiative has been welcomed by the pet industry and greatly reduced feelings of frustration from having attractive species banned.

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