

Evaluation of the risk assessment in regards to the *Nasua nasua* (*Nasua nasua*)

To determine if a species can be placed on a list which states the realistic threat of becoming invasive, certain scientific criteria should be taken into account.

For many species it can be possible to survive in an alien habitat, but they can never become invasive for various reasons. One of which will certainly be the lack of a sizable population to ensure their reproduction for any amount of time. Numbers will faster decline than reproductive rate will predict. Also small numbers in any habitat that will reproduce, soon face problems with genetic diversity and will suffer the consequences of inbreeding.

Also one very important criteria is the sustainability of a species in more than one country of the European Union, while it might be the case that some species will be able to survive in one part of the European Union, no guarantees can be given that is the case for other countries. This is particularly the case in countries that have a subtropical or warmer temperate climate in which coldblooded animals might survive. These same animals won't stand a chance for survival in the colder climates of the European Union and can therefore never become invasive.

Changing environmental condition might give species alien to an area or specific habitat the possibility to sustain itself, it will remain very unlikely that their population size will increase to numbers that can negatively affect other species in that same habitat.

If a species poses a serious danger to other species, human health and the economy and can reproduce itself in high enough numbers to become invasive, the European Union as a whole should coordinate efforts to prevent such species to migrate across the boundaries of the European Union. However it should be taken into account if placing such a plant or animal on the invasive species list will effectively stop the settling or migration of those particular species.

It is far more likely that most invasive settling of a species is confined to small niches of an environment and should be dealt with accordingly providing a sustainable management of this environment and its native species.

It is stated in article 5 of regulation no 1134/2014 (EU) that questions like these must be asked and scientifically substantiate to have enough basis to place any species on a list which prohibits their captive care or economic reproduction.

If the criteria in this legislation aren't met in full, a species cannot be taken into account in regards to placement on the invasive species list.

Risk assessment *Nasua nasua*;

The species is non-native to the European Union with exclusion of the ultra-peripheral regions;

The *Nasua nasua* is an alien species within the boundaries of the European Union, but as stated in the IUCN database on invasive species, the *Nasua nasua* isn't found within the confines of the European Union.

Accounts registered by the EASIN, sightings of the *Nasua nasua* are known in the United Kingdom, but these are separate sightings and no *Nasua nasua* reproduction has ever been witnessed or recorded.

When looking at the literature, only one single population is mentioned to exist on the island of Mallorca as can be read in "Alien species of Europe" by Genovesi (2009). Although the species is mentioned and might pose a problem for local wildlife, no scientific data is presented to suggest that it actually is or could be an invasive species.

The species can grow into a viable population;

In the case of the *Nasua nasua*, this question can simply be answered as: No.

Evidence for this fact can be found by simply looking at the reproductive rate and adaptability of the *Nasua nasua*. Being a mammal species it has to be taken into account that in order for a vertebrate species to have a MVP (minimal viable population) count of more than 500 animals and this is not taken into account, complications arising from inbreeding. If inbreeding is taken out of the equation the numbers are in the thousands.

If any number of *Nasua nasua*'s are set free in a for the species "perfect" environment, there must be complete lack of any predatory species or species that fill a similar niche in this habitat to enable the species to rise to these numbers.

When looking at the climatological conditions of the European Union, most countries simply don't have the conditions for a *Nasua nasua* to survive for any period of time due to the necessity of hibernation of which these animals are physiologically not capable.

Can this species become invasive if environmental change due to climate shift creates the necessary conditions for its survival;

No, *Nasua nasua*'s thrive under conditions with a subtropical climate and temperatures ranging between 25 and 33 degrees centigrade. If the temperatures change more than a few degrees, it's to be expected to have a significant negative effect on the metabolism of *Nasua nasua*'s. These changes in its physiology pose such a threat, especially in regard to the correct fat distribution and reproductive cycles that it can be stated that no *Nasua nasua* will ever become invasive outside the tropical and subtropical regions of the world.

Chevillard-Hugot M-C, Müller E, Kulzeri E (1980) Oxygen consumption, body temperature and heart rate in the coati (Nasua nasua). Comparative Biochemistry and Physiology Part A: Physiology, 65, 305-309.

Can the species disperse over more than two countries within the bio geographical range of the European Union or a marine sub region with exclusion of the ultra-peripheral regions;

No, as was stated in the previous answer, climate within the European Union isn't suitable for the *Nasua nasua* to thrive and reproduce in sufficient numbers to become an invasive threat.

Is it to be expected that the species poses a serious danger to a countries biodiversity and / or related ecosystems;

There have been cases reported in South America that the *Nasua nasua* migrated outside its natural habitat and settled in other regions where climate was suitable in which it poses a risk for native wildlife, like seabirds of the coast of Chile.

Is it plausible that the species poses a risk for human health or the economy of that region;

No serious illnesses or infectious diseases have been contributed by the presence of any *Nasua nasua* population. Only in isolated cases rabies was detected.

Due to the omnivorous nature of the *Nasua nasua*, it will be highly unlikely that any real economic danger exists cause the don't predate a single species or a single crop, therefore loss of these species can't be in significant numbers to negatively influence the economy.

Must the European Union have a largescale, coordinated effort to prevent the settling or migration of this species within the European Union;

Because scientific data isn't available to assume that the *Nasua nasua* will ever become invasive, no coordinated efforts are necessary or can validate the spending of community funds to such a means.

It is likely that putting this species on the invasive list will prevent the species becoming a significant threat;

Because the *Nasua nasua's* is most often placed in the same category as its close relative, the raccoon, many believe the species poses the same invasive risk. This is not the case cause of many factors as stated above.

Zoos and private collections all over the European Union have kept these animals as early as the beginning of the 19th century. In all that time, no *Nasua nasua* has ever been observed in the wild in numbers suitable to grow into a viable population.

Conclusion

It is clear, when looking at the questions and the answers in regard to the *Nasua nasua* that many of the criteria aren't met to place the animal on the invasive list.

Lack of evidence by the scientific community only contributes more to the invalid decision to overrule facts stated.

It is an absolute must that the legislated branch of the European Union is completely transparent in providing the necessary scientific evidence that justifies the placement of any species, plant or animal on a list that has this far reaching consequences.

In the case of the *Nasua nasua*, presumption of its invasive nature is false.