

## Invasion history and control of *Callosciurus erythraeus* in Dadizele, Belgium

Stuyck Jan, Baert Kristof, Breyne Peter & Adriaens Tim.

Research Institute for Nature and Forest (INBO)

The escape of exotic animals bred in zoos or kept as pets has been identified an important pathway of introduction of alien invasive terrestrial vertebrates in Europe. We provide data on invasion history and eradication attempts of an invasive squirrel population possibly resulting from a zoo or pet shop escape in Dadizele, Belgium. In August 2005, bark stripping and cable gnawing was observed in a 5 hectare suburban park in Dadizele, Belgium. The damage was immediately linked to the occurrence of greyish squirrels that were agilely jumping around in the crowns of the trees and were running around crossing open stretches in the wood. Initially the animals were suspected Chinese rock squirrels *Sciurotamias davidianus*, but further behavioural observations and literature data on Chinese rock squirrels offered growing doubts on this. Largely based on the morphology of the male reproductive system we could identify the squirrel as Pallas's Squirrel *Callosciurus erythraeus*, a species of Asian origin. To validate this determination, sequence analysis of two nuclear genes (c-myc and RAG1) was performed. Homology searches against other known sequences showed an almost perfect match with *C. erythraeus*. The exact invasion history of this population is unclear. However, densities were growing rapidly and further damage was to be expected if the species would further expand its range to other urban areas or forest ecosystems. Studies have shown Pallas squirrels to disperse easily and achieve relatively high population densities (5-10 individuals/hectare). In this case also, regular sightings in nearby gardens and the vicinity of a nearby amusement park suggested initial range expansion. The species is a food competitor of the native red squirrel *Sciurus vulgaris* and may outcompete it. Pallas's squirrel has also been observed feeding on bird eggs. Furthermore it damages trees by bark stripping and may be the cause of substantial economic loss in tree plantations. Local authorities agreed on quick action, systematic eradication and monitoring of the whole Dadizele population. Eradication efforts started October 2005. At least 45 squirrels were removed from the site during the first three months. Despite maintained efforts in 2006 sighting of squirrels in the park, surrounding gardens and the nearby abandoned fun-fair Dadipark were still numerous. Trappings from february-april 2008 yielded another 76 animals. Recent sightings have not been reported since. The relatively high number of animals caught illustrates a high reproductive capacity for this invasive alien. Meanwhile, the species has been classified A1 on the BFIS list and received the highest ISEIA score of 11.