

Eradication of the Black Rat *Rattus rattus* on Nishijima, a small island of the Ogasawara Islands

Shun'ichi MAKINO^a and Takuma HASHIMOTO^b

^a Forestry and Forest Products Research Institute, JAPAN

^b Japan Wildlife Research Center, JAPAN

The Ogasawara (Bonin) Islands, about 1000km apart from the mainland of Japan, were registered as a UNESCO World Natural Heritage in 2010, because of their unique flora and fauna. However, invasive alien species have endangered many endemic species and ecosystem there. Effective controls of the alien species are required to conserve the ecosystem, as well as to maintain the value as a world heritage, of the Ogasawaras. One of the most invasive aliens is the infamous black rat (*Rattus rattus*), which is listed in the World's Worst Invasive Alien Species of IUCN. The rat is reported to kill seabirds or feed on seeds of endemic plants, as well as on insects or landsnails on the Ogasawara Islands.

As the first attempt to eradicate black rat population in Japan, we conducted an eradication program of black rats on Nishijima (0.5km²), an uninhabited island near Chichijima of the Ogasawaras. The population of the rat was very high, estimated at 2,500, on the island. We then used a raticide (diphasinone) because ordinary rat traps could not eradicate such a large number of rats. The raticide was applied with bait traps, which were inaccessible for non-target animals. A total of about 600 bait boxes were fixed on the ground over the island in March, 2007. Inspection of bait boxes and replacement of the raticide were continued through September. The population of black rat was greatly reduced by this program, which has been succeeded by an intensive eradication operation by Ministry of Environment. No rats or signs of their existence are now found at present. Increases in the number of seedlings of endemic plants, as well as recolonization of a few bird species demonstrate effects of the intensive control of the black rat.

Corresponding Author:

Shun'ichi MAKINO

Principal Research Coordinator

Forestry and Forest Products Research Institute

Matsunosato 1, Tsukuba, Ibaraki 305-8687, JAPAN

e-mail: makino@ffpri.affrc.go.jp