

Risk assessment of an exotic carpenter bee and associating mites introduced with processed bamboos

Kimiko Okabe^a, Kazuhide Kawazoe^b, Hayato Masuya^a, Takayuki Sasaki^c, Kenzo Yamagishi^c, Takahiro Mano^d and Shun'ichi Makino^a

^a Forestry and Forest Products Research Institute, JAPAN

^b Nagoya, JAPAN

^c Meijo University, JAPAN

^d Toyota Yahagi River Institute, JAPAN

International trade has rapidly expanded worldwide, resulting in an increased transport of alien species. In Japan, information of accidental introduction with processed wood was rarely collected because of no requirement for quarantine. A bamboo nesting carpenter bee, *Xylocopa tranquebarorum*, distributed from China including Taiwan to India has established a population near Toyota, Aichi since 2006. We assume that nests of the carpenter bee were introduced with processed bamboo from mainland China because importing of bamboo into Japan from Taiwan to other regions in China around in 2000. The carpenter bee nests in dead bamboo, which is not a target of inspection under the plant quarantine. A mite species associated with the carpenter bee was found and is different from the one associated with the Taiwanese bee but identical to the one with the Chinese mainland bee.

We predicted that the risk of the carpenter bee affecting native Japanese species was low to medium because competition between native pollinators is unlikely and because there is no damage to living bamboo is expected. However, we also predicted a rapid expansion in range because of the bees' strong association with anthropogenic activities. We also examined the associated mite. We suggest that the mite will not be a pest even though it can switch hosts from *X. tranquebarorum* to the Japanese native species, *X. appendiculata*, based on identical life history traits to the native mites. As the bee and mite survived at around 0C for 3 months, we presume that both species could expand their distributions to Kyushu and Kanto regions, but probably not into mountainous areas of Japan where temperatures are colder. However, to avoid possible unforeseen impacts, we suggest that rapid eradication should be conducted for the populations that are so far only distributed around Aichi.

Corresponding Author:

Kimiko Okabe

Department of Forest Entomology

Forestry and Forest Products Research Institute

1 Matsunosato, Tsukuba, Ibaraki 305-8687, JAPAN

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