

The Asian Yellow-legged Hornet: the implacable advance of a bee-killer

References

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For the full article, see *British Wildlife* Volume 29, Number 2, December 2017.

- Arca, M. 2012. Caractérisation génétique et étude comportementale d'une espèce envahissante en France: *Vespa velutina* Lapeletier (Hymenoptera, Vespidae). PhD dissertation. Université Pierre et Marie Curie, Paris.
- Arca, M., Mougél, F., Guillemaud, T., Dupas, S., Rome, Q., Perrard, A., Muller, F., Fossund, A., Capdevielle-Dulac, C., Torres-Leguizamón, M., Chen, X. X., Tan, J. L., Jung, C., Villemant, C., Arnold, G., & Silvain, J. F. 2015. Reconstructing the invasion and the demographic history of the yellow-legged hornet, *Vespa velutina*, in Europe. *Biol. Invasions* 17: 2357–2371.
- Arca, M., Papachristoforou, A., Mougél, F., Rortais, A., Monceau, K., Bonnard, O., Tardy, P., Thiéry, D., Silvain, J. F., & Arnold, G. 2014. Defensive behaviour of *Apis mellifera* against *Vespa velutina* in France: testing whether European honeybees can develop an effective collective defence against a new predator. *Behav. Proc.* 106: 122–129.
- Blanchard, P., Schurr, F., Celle, O., Cougoule, N., Drajnudel, P., Thiéry, R., Faucon, J.-P., & Ribière, M. 2008. First detection of Israeli acute paralysis virus (IAPV) in France, a dicistrovirus affecting honeybees (*Apis mellifera*). *J. Invertebr. Pathol.* 99: 348–350.
- Couto, A., Lapeyre, B., Thiéry, D., & Sandoz, J.-C. 2016. Olfactory pathway of the hornet *Vespa velutina*: new insights into the evolution of the hymenopteran antennal lobe. *J. Comp. Neurol.* 524: 2335–2359.
- Darrouzet, E., Gévar, J., & Dupont, S. 2015. A scientific note about a parasitoid that can parasitize the yellow-legged hornet, *Vespa velutina nigritorax*, in Europe. *Apidologie* 46: 130–132.
- de Haro, L., Labadie, M., Chanseau, P., Cabot, C., Blanc-Brisset, I., & Penouil, F. 2010. Medical consequences of the Asian black hornet (*Vespa velutina*) invasion in South Western France. *Toxicon* 55: 650–652.
- Defra. 2016. Asian hornet identified in Gloucestershire [Online]. Available at: <https://www.gov.uk/government/news/asian-hornet-identified-in-gloucestershire>.
- Hölldobler, B., & Wilson, E. O. 2008. *The Superorganism*. W.W. Norton & Company, New York.
- Keeling, M. J., Franklin, D. N., Datta, S., Brown, M. A., & Budge, G. E. 2017. Predicting the spread of the Asian hornet (*Vespa velutina*) following its incursion into Great Britain. *Sci. Rep.* 7: 6240.
- Ken, T., Hepburn, H. R., Radloff, S. E., Yusheng, Y., Yiqiu, L., Danyin, Z., & Neumann, P. 2005. Heat-balling wasps by honeybees. *Naturwissenschaften* 92: 492–495.
- Martin, S. J. 1995. Hornets (Hymenoptera: Vespinae) of Malaysia. *Malay. Nat. J.* 49: 71–82.
- Milanesio, D., Saccani, M., Maggiora, R., Laurino, D., & Porporato, M. 2016. Design of an harmonic radar for the tracking of the Asian yellow-legged hornet. *Ecol. Evol.* 6: 2170–2178.
- Milanesio, D., Saccani, M., Maggiora, R., Laurino, D., & Porporato, M. 2017. Recent upgrades of the harmonic radar for the tracking of the Asian yellow-legged hornet. *Ecol. Evol.* 7: 4599–4606.
- Monceau, K., Arca, M., Leprière, L., Mougél, F., Bonnard, O., Silvain, J.-F., Maher, N., Arnold, G., & Thiéry, D. 2013a. Native prey and invasive predator patterns of foraging activity: the case of the yellow-legged hornet predation at European honeybee hives. *PLoS One* 8: e66492.
- Monceau, K., Bonnard, O., & Thiéry, D. 2012. Chasing the queens of the alien predator of honeybee: a water drop in the invasiveness ocean. *Open J. Ecol.* 2: 183–191.
- Monceau, K., Bonnard, O., & Thiéry, D. 2014. *Vespa velutina*: a new invasive predator of honeybees in Europe. *J. Pest Sci.* 87: 1–16.
- Monceau, K., Maher, N., Bonnard, O., & Thiéry, D. 2013b. Predation dynamics study of the recently introduced honeybee killer *Vespa velutina*: learning from the enemy. *Apidologie* 44: 209–221.
- Monceau, K., Maher, N., Bonnard, O., & Thiéry, D. 2015b. Evaluation of competition between a native and an invasive hornet species: do seasonal phenologies overlap? *Bull. Entomol. Res.* 105: 462–469.
- Monceau, K., Moreau, J., Poidatz, J., Bonnard, O., & Thiéry, D. 2015a. Behavioral syndrome in a native and an invasive hymenoptera species. *Insect Sci.* 22: 541–548.
- Monceau, K., & Thiéry, D. 2017. *Vespa velutina* nest distribution at a local scale: An 8-year survey of the invasive honeybee predator. *Insect Sci.* 24: 664–674.
- Ono, M., Terabe, H., Hori, H., & Sasaki, M. 2003. Components of giant hornet alarm pheromone. *Nature* 424: 637–638.
- Poidatz, J., López Plantey, R., & Thiéry, D. In press. Indigenous strains of *Beauveria* and *Metharizium* as potential biological control agents against the invasive hornet *Vespa velutina*. *J. Invertebr. Pathol.*
- Simberloff, D., Martin, J., Genovesi, P., Maris, V., Wardle, D. A., Aronson, J., Courchamp, F., Gail, B., Garcia-Berthou, E., Pascal, M., Pyšek, P., Sousa, R., Tabacchi, E., & Montserrat, V. 2013. Impacts of biological invasions: what's what and the way forward. *Trends Ecol. Evol.* 28: 58–66.
- Spradbery, J. P. 1973. *Wasps: an account of the biology and natural history of social and solitary wasps*. University of Washington Press, Seattle.
- Tan, K., Chen, W., Dong, S., Liu, X., Wang, Y., & Nieh, J. C. 2014. Imidacloprid alters foraging and decreases bee avoidance of predators. *PLoS ONE* 9: e102725.
- Tan, K., Li, H., Yang, M. X., Hepburn, H. R., & Radloff, S. E. 2010. Wasp hawking induces endothermic heat production in guard bees. *J. Insect. Sci.* 10: 142. <http://insectscience.org/142>
- Tan, K., Radloff, S. E., Li, J. J., Hepburn, H. R., Yang, M. X., Zhang, L. J., & Neumann, P. 2007. Bee-hawking by the wasp, *Vespa velutina*, on the honeybees *Apis cerana* and *A. mellifera*. *Naturwissenschaften* 94: 469–472.
- Tan, K., Wang, Z., Chen, W., Hu, Z., & Oldroyd, B. P. 2013. The 'I see you' prey-predator signal of *Apis cerana* is innate. *Naturwissenschaften* 100: 245–248.
- Tan, K., Wang, Z., Li, H., Yang, S., Hu, Z., Kastberger, G., & Oldroyd, B. P. 2012. An 'I see you' prey-predator signal between the Asian honeybee, *Apis cerana*, and the hornet, *Vespa velutina*. *Anim. Behav.* 83: 879–882.
- Thomas, C. R. 1960. The European wasp (*Vespula germanica* Fab.) in New Zealand. *N. Z. Dep. Sci. Ind. Res. Inf. Ser.* 27: 5–74.
- Villemant, C., Muller, F., Haubois, S., Perrard, A., Darrouzet, E., & Rome, Q. 2011. Bilan des travaux (MNHN et IRB) sur l'invasion en France de *Vespa velutina*, le frelon asiatique prédateur d'abeilles. In Barbançon, J.-M., & L'Hostis, M. (eds) *Proceedings of the Journée Scientifique Apicole*, Arles. ONIRIS-FNOSAD, Nantes. Pp 3–12.

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- Villemant, C., Zuccon, D., Rome, Q., Muller, F., Poinar, G. O., & Justine, J.-L. 2015. Can parasites halt the invader? Mermithid nematodes parasitizing the yellow-legged Asian hornet in France. *PeerJ* 3: e947.
- Wang, Z., Qu, Y., Dong, S., Wen, P., Li, J., Tan, K., & Menzel, R. 2016. Honey bees modulate their olfactory learning in the presence of hornet predators and alarm component. *PLoS ONE* 11: e0150399.
- Wen, P., Cheng, Y.-A., Dong, S.-H., Wang, Z.-W., Tan, K., & Nieh, J. C. 2017. The sex pheromone of a globally invasive honey bee predator, the Asian eusocial hornet, *Vespa velutina*. *Sci. Rep.* 7: 12956
- Yañez, O., Zheng, H.-Q., Hu, F.-L., Neumann, P., & Diemann, V. 2012. A scientific note on Israeli acute paralysis virus infection of Eastern honeybee *Apis cerana* and vespine predator *Vespa velutina*. *Apidologie* 43: 587–589.
- Yang, G.-H. 2005. Harm of introducing the Western honeybee *Apis mellifera* L. to the Chinese honeybee *Apis cerana* F. and its ecological impact. *Acta Entomol. Sinica* 48: 401–406.