



**Natural Heritage
& Endangered Species
Program**

www.mass.gov/nhesp

Massachusetts Division of Fisheries & Wildlife

**American Bumble Bee
*Bombus pensylvanicus***

State Status: **Endangered**
Federal Status: **None**

DESCRIPTION: The American Bumble Bee (*Bombus pensylvanicus*) is relatively large, the queen 22-26 mm long, worker 13-19 mm, and male 15-21 mm (Williams et al. 2014). Color pattern is as follows: the face and upperside of the head are black (occasionally gray in the male); the front of the thorax (just behind the head) is always yellow, contrasting with both the head and middle of the thorax, which is black (occasionally gray); the rear of the thorax is usually black, but may be gray or partially yellow. In the queen and worker, the front two-thirds of the abdomen is yellow, contrasting with the rear one-third, which is black. The abdomen of the male is almost entirely yellow, typically (though not always) with orange at the rear tip. The Northern Amber Bumble Bee (*Bombus borealis*), which may occasionally occur in northern Massachusetts, is distinguished from the American Bumble Bee by its yellow face and upperside of the head. When the American Bumble Bee is black or gray on the rear of the thorax, it may be confused with the Yellow-banded Bumble Bee (*Bombus terricola*). However, upon examination in the hand, the American Bumble Bee has a head that is longer than wide (opposite the case in the Yellow-banded Bumble Bee); shorter antennae; and the queen and worker do not have yellow hairs at the tip of the



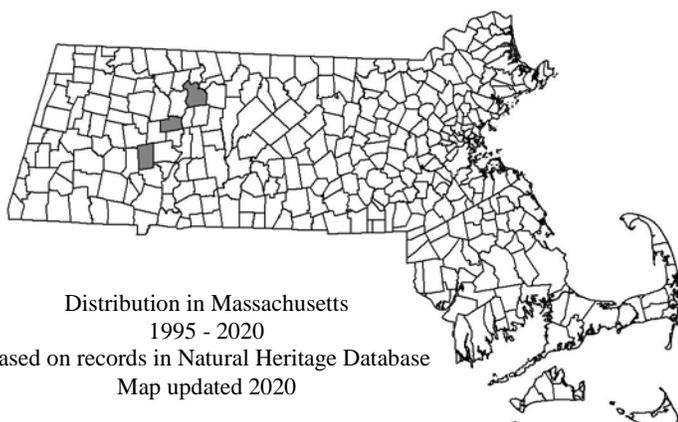
Bombus pensylvanicus, female • VA: Wythe Co., Ivanhoe • 20 Sep 2017 • Photo by M.F. Veit

Adult Flight Period in Massachusetts

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

abdomen, as is typical for the Yellow-banded (Williams et al. 2014). The male American Bumble Bee may be confused with the Yellow Bumble Bee (*Bombus fervidus*), however the American Bumble Bee is black on the sides of the thorax (yellow in the Yellow Bumble Bee), and has orange at the tip of the abdomen, which is never the case in the Yellow Bumble Bee.

HABITAT: As a group, bumble bees are relatively generalized in habitat requirements and floral resource needs as compared to many other bees. However, the American Bumble Bee is a long-tongued species dependent on plants with long, tubular flowers for nectar. The American Bumble Bee may be found in grasslands, fields, pastures, and other farmlands, as well as suburban yards, parks, and gardens. However, habitat must provide a diversity of flowers blooming throughout the growing



A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Road, Westborough, MA 01581; tel: 508-389-6300; fax: 508-389-7890; www.mass.gov/dfw

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

www.mass.gov/nhesp

season, and threats such as introduced pathogens or pesticide use must be absent or sufficiently diffuse. Within such habitat, this species typically nests on the ground surface in tufts of long grass or piles of cut grass or hay (Williams et al. 2014).

LIFE HISTORY: Like all bumble bees, the American Bumble Bee is active throughout the growing season. The queen overwinters, emerging in the spring to start a new colony. Workers become increasingly abundant through late summer, and then begin to decline as males emerge in late summer and early fall. Queens of the American Bumble Bee begin activity later in the spring than most other bumble bees (Grixti et al. 2009), a trait that may confer greater susceptibility to decline (Williams et al. 2009).

GEOGRAPHIC RANGE: The American Bumble Bee is a southern species, in the East ranging from southern Maine south to Florida, and west to Montana and Arizona; it is absent from much of the Mountain West, but found on the West Coast in Oregon and California (Williams et al. 2014). Massachusetts is near the northern edge of this species' range.

STATUS AND THREATS: The American Bumble Bee is in decline in the northern parts of its range (Grixti et al. 2009, Cameron et al. 2011, Williams et al. 2014, Colla 2016). In Massachusetts prior to 50 years ago, the American Bumble Bee occurred in the Connecticut River Valley region of Franklin, Hampshire, and Hampden Counties, as well as in Middlesex, Norfolk, and Suffolk counties, and in the southeastern part of the state in Plymouth County, on Cape Cod, the Elizabeth Islands, and Martha's Vineyard. It has since declined dramatically, now found only in the Connecticut River Valley region of Franklin and Hampshire Counties, where it is very rare. Threats potentially affecting the American Bumble Bee in Massachusetts include: (1) pathogens introduced via commercially propagated bumble bees; (2) habitat loss or degradation, including loss of native floral diversity to adverse landscaping practice, agricultural intensification, succession and afforestation, or excessive deer browse; and (3) pesticide use where habitat overlaps or interfaces with agricultural or landscaped areas.

Literature Cited

Cameron, S.A., J.D. Lozier, J.P. Strange, J.B. Koch, N. Cordes, L.F. Solter, and T.L. Griswold. 2011. Patterns of widespread decline in North American bumble

bees. *Proceedings of the National Academy of Sciences* 108(2): 662-667.

Colla, S.R. 2016. Status, threats and conservation recommendations for wild bumble bees (*Bombus* spp.) in Ontario, Canada: a review for policymakers and practitioners. *Natural Areas Journal* 36(4): 412-426.

Grixti, J.C., L.T. Wong, S.A. Cameron, and C. Favret. 2009. Decline of bumble bees (*Bombus*) in the North American Midwest. *Biological Conservation* 142(1): 75-84.

Williams, P., S. Colla, and Z. Xie. 2009. Bumblebee vulnerability: common correlates of winners and losers across three continents. *Conservation Biology* 23(4): 931-940.

Williams, P., R. Thorp, L. Richardson, and S. Colla. 2014. *Bumble Bees of North America*. Princeton University Press, Princeton, New Jersey. 208 pp.

Authored by M.W. Nelson (NHESP Invertebrate Zoologist) and M.F. Veit, January 2020

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.