

BUMBLE BEES

By Art Antonelli and Jenny Rebecca Glass

The Pacific Northwest has probably a dozen or more species of bumble bees. With the decline of feral honeybees and the impact on domestic bees by parasitic mites, bumble bees (not impacted by these mites) have become very important in the pollination of home garden fruits and vegetables. Bumble bees have for a long time been agriculturally important in the pollination of red clover seed fields and in cranberry production. Most of our bumble bees are black and yellow and hairy (Fig. 1.) but some are adorned with significant orange stripes or patches (Fig. 2.).

Bumble bees are cool weather operators. Queens are seen as early as late March or early April and as early as 7:30 AM (authors observations). Their bodies have an interesting adaptation that assists them in being flight functional in cool temperatures when other insects cannot fly. Their thorax is almost always totally or partially black and often “bald”. The black color absorbs heat quickly and warms up the flight muscles allowing them to fly after only being exposed to sunlight for a short time.



Fig. 1. Adult bumble bee- a black and yellow species.

Bumble bee colony development bears a striking parallel to that of the yellowjacket inasmuch as colonies are started each spring by a single fertile overwintered queen. Colonies usually begin forming in April. The first workers produced are often very puny and sometimes cannot fly. As the season progresses, the workers grow larger. If you looked at the structure of a bumble bee nest or colony in mid to late May, you would likely see (along with adult activity) a collection of closed spheres about ½ inch or more in diameter (pupae), open spheres (old cocoons used for pollen and honey storage), smaller closed spheres (egg cells) often between the tips of pupal cocoons and open honey pots (often as long as an inch) for sustenance of queen (and workers) when needed (Fig. 3.). The colony is a more or less loose aggregate of waxy bodies (spheres, etc.) insulated in materials such as newspaper, cotton batting, wall insulation, etc. often shredded by rodents (Fig. 4.). Large colonies of some of our more common species will have produced 200 to 300 workers by the end of the season. New queens, and males begin appearing in early June. The colonies begin deteriorating by early to mid July.



Fig. 2. Adult bumble bee- a black, yellow and orange species (probably *Bombus* sp.)



Fig. 3. Bumble bee nest showing workers, several pupal spheres, and open honey storage spheres in shredded newspaper nesting material



Fig. 4. Bumble bee nest in wall insulation

Nest sites chosen for these colonies are quite variable. Bumble bees are opportunistic. They don't often excavate. Instead, they utilize deserted rodent nests and burrows, cavities in compost heaps, under boards, between railroad ties, in woodpiles, in vacant birdhouses, wall voids, etc. You can encourage the nesting of bumble bees in your yard by building and placing artificial nesting boxes (see references).

Bumble bees can sting. They are among the most docile of bees until their nest is disturbed. When this happens, they become terribly aggressive and attack the intruder. Their sting is quite painful.

Bumble bees have a number of natural enemies. The most destructive parasite is a species of flesh fly maggot. Other pests of bumble bees are lesser house fly maggots, certain sap beetles, scavenger and predator mites, the dried fruit moth caterpillar, and many others depending on geographical area. Mammals such as shrews, mice, and skunks can also be very destructive to bumble bee colonies. Human beings are probably the most destructive entity to bumble bees inasmuch as they often spray insecticides to blooming plants. Keep in mind that bumble bees are just as sensitive, if not more so, to garden chemicals as are honeybees. The rule of thumb for the gardener is - **Never spray insecticides to blooming plants**. Paying attention to this rule will ensure that you maintain bumble bees as efficient native pollinators in your garden.

References

- Johansen, C. Ecology of three species of bumble bees in southwestern Washington. 1967. WSU Tech. Bull. 57. 12 pp.
- Link, R. Landscaping for wildlife in the Pacific Northwest. 2000. Univ. of Wash. Press in assoc. with W.D.F.W. 320 pp.
- Plath, O.E. Bumble bees and their ways. 1934. MacMillan Co. 201 pp.