Bumble Bee Nest Relocation Program
(BBNRP)

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Introduction

A number of organizations and municipalities are aware of the increasing need for bumble bee conservation. Currently, Xerxes society, along with a number of State agencies in the PNW, throughout the years, developed a comprehensive survey to lay the foundation for future work for government agencies and researchers on where the conservation needs are the greatest for these bees. *See Pacific Northwest Bumble Bee Atlas, November 2021*.

Currently, 2 species of Bumble Bees are protected under the Endangered Species Act of 1973, as amended (16 U.S.C 1531 *et seq.*) (ESA) since 2017. 2 others are under review.

Continuing on this trend, other species are bound to be protected under this law in the near future. For example, If the Western Bumble Bee is protected under ESA, more authority will be given for protecting this insect via regulations, conservation of habitat, and possibly rules on destroying nests on private property of your average homeowner.

Importance

As described above, the need for Bumble Bee conservation is paramount. Soon laws will be enacted to protect these bees. When they are, it is possible that when a nuisance nest is discovered, homeowners may not have the legal right to destroy them due to federal regulations. The homeowners might resort to killing the nest illegally. Even if federal regulations don't prohibit destruction of bumble bee nests, homeowner still will typically choose killing the nest than paying someone to relocate it. They will typically find the easiest and cheapest route. A plan is needed to safely relocate these bees with science backed processes before laws are set in place. If a relocation organization is put in place for the public and the process is free, they will readily allow us to help.

History

Bumble Bee nest relocations are not a new idea. However, the technique involving this process is spars, and varies from person to person. Some techniques involve simply taking the nest at midday or at night, putting it into a wooden or plastic box, and placing it a certain distance from the original location. The collector typically doesn't put forth effort to collect any workers, if so, they do it haphazardly. The outcome is that the nest does not do well after relocation. It's said that nests most commonly perform 50% less, versus when left alone. Sometimes the nest dies off before the reproductive phase is reached. There is no official way to relocate Bumble Bees. It has not been well researched. Very few ask the question, "why don't they do well when relocated?". We can only guess. Sometimes Beekeepers and University Associates will occasionally help, but this is not consistent among our North American Regions. A solid, comprehensive, and consistent way of relocating Bumble Bees is paramount for tools in conservation.

Benefits

If a consistent way of relocations is officialized, the amount of data that can be collected from each event will be all the more helpful to the effort of conservation. Combining this data with surveys from the *Xerces Society,* and other Organizations will complement each other and give us a greater understanding of nesting behavior.

Relocations will also give us the ability to understand genetic diversity among individual species and test what pollen they are collecting plants from. Furthermore, if a survey discovers a large population decline in a specific region, a reserve of local, native, pest and pathogen free bees could be available to locate into that region to increase populous and diversity of genetics.

The benefits don't have to end there. The more research done on this project could possibly make for a momentous data bank of useful information on Bumble Bees. Developing a tested and proven way to safely relocate bumble bee nests could provide government agencies and other conservation organizations with the tools needed to aid the public in healthy control of nests that are considered a nuisance while conserving them. Finaly, if populations become stable and the program is mature, having a natural reserve of Bumble Bees could positively affect farming. Instead of farmers using managed honeybees where transcontinental movement is necessary, they could use Bumble Bee nests from their local area to pollinate their crops.

Filtering

When a nest is discovered, the homeowner will call and inform us of a possible nuisance Bumble Bee nest. A team member will go out and assess that nuisance nest. If it is indeed bumble bees, the team member will ascertain if the species is native or on a governmental protection list. The team member will also ascertain if the nest contains a pest or pathogen that could harm other species of bumble bees when relocated or see if the nest is in an attic space of a home, crawlspace, or other hard to reach areas. If certain criteria are not met, the nest will either be destroyed or left for the homeowner to decide what to do. However, if the nest is cleared for relocation, we can proceed.

Relocation Procedure

GNC method:
Once the nest has been identified and cleared for relocation, the team member will fill out a Gradual Nest Containment Data Sheet (GNC) and take the necessary pictures as required by the data sheet. The process shall start in the early morning, preferably just after sunrise. The nest will then be placed into a GNC Box. The box will then be placed back exactly where the nest was originally located. The team member will then return the next night (2 days total) to retrieve the box. The time elapsing from leaving the box to returning to it can vary depending on the needs of the team member. However, it is required that the time given is at least 2 full days before the relocation of the box to the desired plot of land. The Box will then be relocated to a sanctuary that night.

INC method:
Once the nest has been identified and cleared for relocation, the team member will fill out an Instantaneous Nest Collection Data Sheet (INC) and take the necessary pictures as required by the data sheet. The process should start 2 hours after the sun has set. A vacuum will be used to remove all the workers and potential males from the nest. The queen must be located separately and carefully placed in an appropriate container for holding. Once the nest is empty, it will be carefully removed and placed in a Bumble Bee housing unit. The collected bumble bees will be chilled on ice for 10 minutes and placed back with the nest, including the queen. However, the queen should not be chilled.

Sanctuaries

A pre-designated place for the relocated nests to go is imperative for the success of this program. The Land Placement instructions however will change over time as we collect more and more data to facilitate proper health of the nests.

The first plan is to pre-designate a “sanctuary” for each individual species in its native range. The sanctuary will in particular have the required host plants needed for each species and of course an area for females to overwinter and nest anew for next season. Utilizing Xerces Society, Bumble Bee Atlas, can be an accurate way of ascertaining where the needs of population growth are needed and placing sanctuaries there. However, placing sanctuaries in each grid block according to the Bumble Bee Atlas grid would be a reasonable decision as well. The nests would then be transported to areas according to population needs. Team members that can procure private land for this purpose would be an asset.

It is recommended that all sanctuary sites are at least 1280 acres in size (Journal of Animal Ecology 2008, 77 , 406–415)

Obtaining Sanctuaries

Sanctuaries can either be donated private property or reserves and parks produced by municipalities. Private property that is donated would be a more likely scenario. This way, it would be easier to choose a plot near a place that is more desirable.

Producing Data

In each sanctuary, a team member will visit the site every week and collect data on the health of the nests. They will fill out a Bumble Bee Nest Health Diagnostic Data Sheet (BBNHD). Over time, as data is collected, we can see what is being done right, and what we could improve on.

Service Territory

The plan is to start spring of 2025 for Snohomish County. Future plans are to incorporate all of Washington under this process by 2035.

Non-Relocated nests

There are a number of organizations looking to survey naturally established Bumble Bee nests. The tagging program that was originally intended to be implemented through BBNRP should be outsourced to other organizations. BBNRP could send or recruit volunteers for other organizations to survey nests as needed. However, if no organization collects data in the way anticipated by BBNRP, we will initiate a program as needed.

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