



Insects



Ashton's Cuckoo Bumble Bee

Bombus ashtoni

Priority 1 Species of Greatest Conservation Need (SGCN)

Class: Insects (*Insecta*)

Order: Ants, Bees, Wasps And Sawflies (*Hymenoptera*)

Family: Honey Bees, Bumble Bees, And Allies (*Apidae*)

General comments:

The Ashton's Cuckoo Bumble Bee (family Apidae, genus Bombus) is a member of the subgenus Psithyrus, which includes specialized obligate nest parasites that rely on colonies of true bumble bee species to raise their offspring. This species has a large range spanning northern and western North America, Europe and Asia, but it has declined dramatically in North America, where it is Critically Imperiled. It is listed as Endangered in Maine, where it was once found statewide but had not been observed since 1995 until it was rediscovered in 2017 at two sites in northern Aroostook County. Threats to this species are not well understood, but past declines in host species, pesticides, introduced pathogens, and impacts of climate change may all play a role.

Species Conservation Range Maps:

Town Map: [Bombus ashtoni_Towns.pdf](#)

Subwatershed Map: [Bombus ashtoni_HUC12.pdf](#)

SGCN Priority Ranking - Designation Criteria:

Risk of Extirpation:	Maine Status: Endangered	Federal Status: None	IUCN Red List Status: None
Recent Significant Declines:	Ashton's Cuckoo Bumble Bee is currently undergoing steep population declines, which has already led to, or if unchecked is likely to lead to, local extinction and/or range contraction. Notes: no modern occurrences post mid 1990s - possibly extirpated; this species is an obligate nest parasite on <i>B. affinis</i> (SH) and <i>B. terricola</i> (SU), the latter which still persists in recent Maine collections, so could potentially support some lingering popula		
Historical:	Species currently listed as state (SH) or global (GH) historical (by MDIFW or NatureServe) that have some reasonable probability of rediscovery with further survey effort. State Rank: S1, Global Rank: G3G5, Rounded Global Rank: G4, MDIFW Historical: Yes MDIFW Historical Notes: no modern occurrences post mid 1990s - possibly extirpated; this species is an obligate nest parasite on <i>B. affinis</i> (SH) and <i>B. terricola</i> (SU), the latter which still persists in recent Maine collections, so could potentially support some lingering popula		
High Regional Conservation Priority:	Northeast Regional Synthesis (RSGCN): Responsibility: Low, Concern: Very High		

Professional Discretion:

Current criteria ranked *Bombus ashtoni* as SGCN priority 2, however, species should qualify as SGCN priority 1 based on professional discretion.

Justification:

also listed as Endangered by COSEWIC (as *B. bohemicus*); IUCN rank (LC) is based on European status - species is considered Critically Imperiled in North America

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Habitat Associations:

Formation: Agricultural

Macrogroup: Agricultural

Habitat System: Agricultural Macrogroup - Unknown Habitat System
habitat generalist where forage plants present; all modern occurrences in northern forest edges adjacent to large open farm fields; historical records in managed blueberry barrens

Formation: Developed

Macrogroup: Urban-Suburban Built

Habitat System: Urban-Suburban Built Macrogroup - Unknown Habitat System
habitat generalist where forage plants present; historical records from rural backyard gardens and urban parks

Formation: Grassland & Shrubland

Macrogroup: Ruderal Shrubland & Grassland

Habitat System: Ruderal Shrubland & Grassland Macrogroup - Unknown Habitat System
habitat generalist where forage plants present

Formation: Northeastern Upland Forest

Macrogroup: Acadian-Northern Appalachian Forest

Habitat System: Acadian-Northern Appalachian Forest Macrogroup- Unknown Habitat System
habitat generalist where forage plants present; all modern occurrences in northern forested landscape

Formation: Peatland

Macrogroup: North American Boreal & Subboreal Bog & Acidic Fen

Habitat System: North American Boreal & Subboreal Bog & Acidic Fen Macrogroup - Unknown Habitat System
habitat generalist where forage plants present; historical records widespread in northern and Downeast landscapes

Threats

Threat Priority Level based on Severity and Actionability		Moderate Severity		High Severity	
	Highly Actionable		Medium-High		High
	Moderately Actionable		Medium		Medium-High
	Actionable with Difficulty		Low		Low

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IUCN Level 1 Threat Other Options

IUCN Level 2 Threat: Other Threat

Severity: High Severity**Actionability:** Moderately Actionable

Notes: pesticides (e.g., seed/nursery stock inoculation; homeowner, agricultural and forest management applications of insecticides and herbicides; herbicide spraying along roadsides and powerline ROWs) can cause direct mortality of bees, affect behavior, weaken immune systems, decrease forage plant availability, etc; this species appears to have experienced significant declines in relative abundance and distribution in Maine, and one of its two known host species is likely extirpated, which may be difficult to reverse; lack of comprehensive species assessment and conservation plan, including recovery goals

IUCN Level 2 Threat: Resource Needs

Severity: High Severity**Actionability:** Moderately Actionable

Notes: MDIFW lacks funding and staff to implement conservation actions for SGCN invertebrates (e.g., surveys and monitoring, research, habitat protection, outreach and education)

IUCN Level 1 Threat Other Options

IUCN Level 2 Threat: Education & Outreach

Severity: Moderate Severity**Actionability:** Moderately Actionable

Notes: some threats and challenges facing pollinators can be minimized through enhanced public outreach and advocacy (e.g., pesticide use, habitat management and creation, best practices for commercial/private hive management, awareness and appreciation)

IUCN Level 2 Threat: Lack of knowledge

Severity: Moderate Severity**Actionability:** Moderately Actionable

Notes: lack of comprehensive knowledge about distribution, status, threats, habitat, life history

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IUCN Level 1 Threat Climate Change and Severe Weather

IUCN Level 2 Threat: Changes in Precipitation and Hydrological Regimes

Severity: Moderate Severity**Actionability:** Actionable with Difficulty

Notes: extreme and/or prolonged events (flooding or drought) can cause direct mortality, flooding of ground nests, disruption of activity patterns, impacts to forage plant availability and quality, etc.

IUCN Level 2 Threat: Changes in Temperature Regimes

Severity: Moderate Severity**Actionability:** Actionable with Difficulty

Notes: potential impacts from climate change could exceed species' temperature thresholds, disrupt activity patterns, affect forage plant quality, lessen snow pack cover, etc; studies have shown that of all the potential climate change variables, increased temperature has the largest effect on bumble bee occupancy

IUCN Level 2 Threat: Habitat Shifting or Alteration

Severity: Moderate Severity**Actionability:** Actionable with Difficulty

Notes: potential impacts of climate change (e.g., impact on forage plant bloom phenology and nectar/pollen quality, increased temperatures, extreme weather, increased frequency and duration of flooding or drought, shifting host species distribution, changing/shifting plant communities, etc.)

IUCN Level 1 Threat Invasive and Other Problematic Species, Genes and Diseases

IUCN Level 2 Threat: Intrinsic Biological Limitations

Severity: High Severity**Actionability:** Actionable with Difficulty

Notes: inherent characteristics of life history (e.g., small colony size, annual life cycle, host specificity, host dependent phenology, etc) and demographics (e.g., low densities, range contraction, highly fragmented populations, reduced genetic diversity) all contribute to threat sensitivity and challenges for conservation and recovery; this species has only been documented to use two species as hosts - the Rusty-patched Bumble Bee, which is federally endangered and likely extirpated from Maine, and the Yellowbanded Bumble Bee, which experienced significant past declines but is now rebounding; this loss of host species likely contributed to its apparent steep decline both in Maine and rangewide

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IUCN Level 1 Threat Invasive and Other Problematic Species, Genes and Diseases

IUCN Level 2 Threat: Invasive Non-native-Alien Species-Diseases

Severity: High Severity**Actionability:** Actionable with Difficulty

Notes: introduced pathogens, parasites, and diseases from imported commercial *Bombus* and honeybee colonies; impacts on native plant communities from invasive non-native plants; competition from non-native introduced pollinators

IUCN Level 1 Threat Other Options

IUCN Level 2 Threat: Unknown

Severity: Moderate Severity**Actionability:** Actionable with Difficulty

Notes: may be unknown threats or combinations of threats contributing to range-wide declines of some bumble bee species

Species Level Conservation Actions:

Only species specific conservation actions that address high (red) or medium-high (orange) priority threats are summarized here.

Conservation Action	Category	Biological Priority	Type
Draft a species assessment and conservation plan, including recovery goals.	Species Management	high	new

Threat(s) Addressed By This Conservation Action

■ Other Threat

Conservation Actions Associated with the Bumble Bees Guild:

Conservation Action	Category	Biological Priority	Type
Conduct comprehensive, targeted statewide surveys to inform status, distribution, threats, and habitat use.	Survey and Monitoring	high	on-going

Threat(s) Addressed By This Conservation Action

- Other Threat
- Lack of knowledge

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Conservation Action	Category	Biological Priority	Type
Analyze results of the Maine Bumble Bee Atlas project, research and incorporate external Maine records (historical and modern), and produce a summary document and conservation assessment.	Research	high	on-going

Threat(s) Addressed By This Conservation Action

- Education & Outreach
- Lack of knowledge

Conservation Action	Category	Biological Priority	Type
Develop/distribute guidelines and outreach materials to inform conservation partners, land use managers, and the general public about the impacts of pesticides on native pollinators and to promote the alternative use of Integrated Pest Management practices.	Public Outreach	high	on-going

Threat(s) Addressed By This Conservation Action

- Education & Outreach
- Other Threat

Conservation Action	Category	Biological Priority	Type
Increase MDIFW staff capacity for survey and conservation of SGCN invertebrates.	Policy	critical	new

Threat(s) Addressed By This Conservation Action

- Education & Outreach
- Lack of knowledge
- Resource Needs

Conservation Action	Category	Biological Priority	Type
Develop/distribute outreach materials to inform land managers and homeowners about creating and managing habitat for native pollinators, and the importance of using native plants.	Public Outreach	moderate	on-going

Threat(s) Addressed By This Conservation Action

- Invasive Non-native-Alien Species-Diseases
- Education & Outreach

Conservation Action	Category	Biological Priority	Type
Develop/distribute outreach materials to raise public awareness and appreciation of native pollinator ecology, threats and conservation needs.	Public Outreach	moderate	on-going

Threat(s) Addressed By This Conservation Action

- Education & Outreach

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Conservation Action	Category	Biological Priority	Type
Conduct a statewide bumble bee atlasing project.	Survey and Monitoring	high	completed

Conservation Action	Category	Biological Priority	Type
Update NatureServe Sinks for all Maine bumble bee species based on results of the Maine Bumble Bee Atlas.	Research	high	completed

Threat(s) Addressed By This Conservation Action

- Lack of knowledge

Broad Taxonomic Group Conservation Actions:

Additional relevant conservation actions for this species are assigned within broader taxonomic groups in Maine's Wildlife Action Plan: Element 4.

Habitat Based Conservation Actions:

Additional conservation actions that may benefit habitat(s) associated with this species can be found in Maine's Wildlife Action Plan: Element 4. Click on the Habitat Grouping of interest to launch a habitat based report summarizing relevant conservation actions and associated SGCN.

The Wildlife Action Plan was developed through a lengthy participatory process with state agencies, targeted conservation partners, and the general public. The Plan is non-regulatory. The species, threats, and voluntary conservation actions identified in the Plan complement, but do not replace, existing work