



Insects

Indiscriminate Cuckoo Bumble Bee

Bombus insularis

Priority 2 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 Indiscriminate Cuckoo Bumble Bee (family Apidae, genus Bombus) is a member of the subgenus Psithyrus, which are specialized obligate nest parasites that rely on colonies of true bumble bee species to raise their offspring. This species is widely distributed across northern and western North America, but evidence suggests it has recently experienced strong declines in some parts of its range. It is listed as Special Concern in Maine, where it is known from just 8-10 historical specimens from four counties and three modern records, all from northern Aroostook County, despite a six-year, statewide bumble bee atlas project. Threats to this species are not well understood, but may include declines in host species, pesticides, introduced pathogens, and climate change.

Species Conservation Range Maps:

Town Map: [Bombus insularis Towns.pdf](#)

Subwatershed Map: [Bombus insularis_HUC12.pdf](#)

SGCN Priority Ranking - Designation Criteria:

State Special Concern:	Indiscriminate Cuckoo Bumble Bee is listed as a species of Special Concern in Maine.
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: G3, Rounded Global Rank: G3, MDIFW Historical: Yes
High Regional Conservation Priority:	NatureServe: Global Rank: G3 State Rank: S1

Habitat Associations:

Formation: Agricultural

Macrogroup: Agricultural

Habitat System: Agricultural Macrogroup - Unknown Habitat System
habitat generalist; most occurrences in northern and Downeast forested landscapes, including in embedded bogs, managed blueberry barrens, and large open farm fields

Formation: Grassland & Shrubland

Macrogroup: Ruderal Shrubland & Grassland

Habitat System: Ruderal Shrubland & Grassland Macrogroup - Unknown Habitat System
habitat generalist where forage plants present, including old fields and powerline ROWs

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Formation: Northeastern Upland Forest

Macrogroup: Acadian-Northern Appalachian Forest

Habitat System: Acadian-Northern Appalachian Forest Macrogroup- Unknown Habitat System
habitat generalist; most occurrences in northern and Downeast forested landscapes

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; most occurrences in northern and Downeast forested landscapes, including in embedded bogs/fens

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

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

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)

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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, habitat, threats, life history

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 *Bombus* distribution, changing/shifting plant communities, etc.)

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

IUCN Level 2 Threat: Intrinsic Biological Limitations

Severity: Moderate 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, fragmented populations, reduced genetic diversity) all contribute to threat sensitivity and challenges for conservation and recovery

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

Severity: Moderate 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:

None. Only species specific conservation actions that address high (red) or medium-high (orange) priority threats are summarized here.

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