

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
2	Paectes abrostolella	(no common name)	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
3	Argillophora furcilla	A cane moth	Terrestrial Insect	Lepidoptera	III	c	Riparian and Floodplains, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		cane (Arundinaria) specialist
4	Franclemontia interrogans	A cane moth	Terrestrial Insect	Lepidoptera	III	c	Riparian and Floodplains, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		cane (Arundinaria) specialist
5	Pseudanopthalmus gracilis	A cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
6	Pseudanopthalmus pusio	A cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
7	Colletes ciliatus	A cellophane bee	Terrestrial Insect	Ins-Hymenoptera	III	c	Creeks and Rivers, Large Rivers, Tidal Creeks and Rivers, Large Tidal Rivers, Nontidal Rivers	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		Dodder specialist
8	Phanaeus igneus	a dung beetle	Terrestrial Insect	Coleoptera	III	c	Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
9	Helops sulcipennis	A flightless darkling beetle	Terrestrial Insect	Coleoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

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10	Idaea tactorata	A Geometrid Moth	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
11	Lytrosis permagnaria	A geometrid moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Complete removal of forest habitat for logging would render the habitat non-viable for this species.(5.3.1)		
12	Xanthorhoe iduata	A Geometrid Moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
13	Megachile integra	A leafcutter bee	Terrestrial Insect	Ins-Hymenoptera	I	c	Forests and Woodlands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
14	Megachile rugifrons	A leafcutter bee	Terrestrial Insect	Ins-Hymenoptera	III	c	n/a	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
15	Osmia illinoensis	A mason bee	Terrestrial Insect	Ins-Hymenoptera	I	c	Forests and Woodlands, Glades and Barrens	1.1.2, 9.3.3, 4.2.1	Low-Density Housing Areas / Herbicides and Pesticides / Power and Service Lines	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. / Networks of buildings, towers, pylons and poles that are associated with electricity distribution and telecommunications, excluding hydroelectric dams of power plants (Threat 3.3.1). The scope of rights-of-way may vary according to their size.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		

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16	Aplectoides condita	A Noctuid Moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
17	Dichagyris grotei	A Noctuid Moth	Terrestrial Insect	Lepidoptera	III	c	Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
18	Meropleon titan	A noctuid moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or moving may be needed to retard woody succession (7.3.2)		
19	Ceratocanthus aeneus	a pill scarab	Terrestrial Insect	Coleoptera	IV	a	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
20	Sacrophaga sarraceniae or a species of Fletcherimyia	A pitcher plant flesh fly	Terrestrial Insect	Diptera	II	a	Non-tidal Wetlands	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2) Pitcher plant bogs decline with progressing natural succession. Need disturbance to keep them open (fire, woody vegetation removal, etc.) (7.3.2)		
21	Heterocampa astarte	A Prominent Moth	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands, Beaches and Dunes	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
22	Arianops jeanneli	A short-winged mold beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

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23	Poanes aaroni	Aaron's Skipper	Terrestrial Insect	Lepidoptera	IV	c	Non-tidal Wetlands, Tidal Wetlands, Tidal Creeks and Rivers, Large Tidal Rivers	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
24	Bombus pensylvanicus	American bumble bee	Terrestrial Insect	Ins-Hymenoptera	IV	a	Forests and Woodlands, Grasslands, Shrublands, Savannas, Glades and Barrens, Urban Lands, Transportation Networks, Croplands, Orchards	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)	Grassland pastures, shrubland pastures, savanna pastures	
25	Andrena fulvipennis	An andrenid bee	Terrestrial Insect	Ins-Hymenoptera	IV	c	Shrublands, Savannas, Beaches and Dunes	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
26	Aphaenogaster floridana	An ant	Terrestrial Insect	Ins-Hymenoptera	IV	a	Savannas	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
27	Monomorium viridum	An ant	Terrestrial Insect	Ins-Hymenoptera	III	a	Savannas, Beaches and Dunes	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
28	Celastrina neglectamajor	Appalachian azure	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Timbered forested uplands	
29	Pyrgus wyandot	Appalachian grizzled skipper	Terrestrial Insect	Lepidoptera	I	a	Forests and Woodlands, Glades and Barrens	1.1.2, 7.3.2, 9.3.3	Low-Density Housing Areas / Vegetation Succession / Herbicides and Pesticides	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or moving may be needed to retard woody succession (7.3.2), Avoid using broad spectrum insecticides to control spongy moths in areas inhabited by this skipper; instead use spongy moth-specific control measures (9.3.3)	Timbered forested uplands	

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30	Papaipema araliae	Aralia shoot borer moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Shrublands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
31	Papaipema furcata	Ash borer moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	8.1.1, 1.1.2,	Terrestrial Animals / Low-Density Housing Areas /	/ Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. /	Need to control emerald ash borer which is killing the primary larval hostplant (ash trees) of this moth (8.1.1), Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Timbered forested uplands	
32	Bombus bohemicus	Ashton cuckoo bumble bee	Terrestrial Insect	Ins-Hymenoptera	I	c	Forests and Woodlands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3) Rangewide decline may be due to a pathogen (8.4)		Nest parasite of Bombus affinis, so fate related to its host
33	Speyeria atlantis	Atlantis fritillary	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
34	Pyrrhia aurantiago	Aureolaria seed borer	Terrestrial Insect	Lepidoptera	II	c	Savannas, Glades and Barrens	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or moving may be needed to retard woody succession (7.3.2)		
35	Pseudanophthalmus avernus	Avernus cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
36	Euphydryas phaeton	Baltimore Checkerspot	Terrestrial Insect	Lepidoptera	IV	c	Glades and Barrens, Riparian and Floodplains, Non-tidal Wetlands	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or moving may be needed to retard woody succession (7.3.2)	Grassland pastures, shrubland pastures	

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37	Acronicta albarufa	Barrens dagger moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Glades and Barrens	1.1.2, 7.1.2,	Low-Density Housing Areas / Suppression in the Fire Regime /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Occurs in barren habitats that need periodic fire (7.1.2)		
38	Macaria exonerata	Barrens itame	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Glades and Barrens	1.1.2, 7.1.2,	Low-Density Housing Areas / Suppression in the Fire Regime /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Occurs in barren habitats that need periodic fire (7.1.2)		
39	Properigea costa	Barrens moth	Terrestrial Insect	Lepidoptera	III	b	Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
40	Photuris bethaniensis	Bethany Beach firefly	Terrestrial Insect	Coleoptera	I	c	Beaches and Dunes	11.1, 1.1.2, 8.1.4	Habitat Shifting and Alteration / Low-Density Housing Areas / Aquatic Plants	Major changes in habitat composition or location / Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. /	Susceptible to rising sea levels resulting from climate change.(11.1), Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Need to control Phragmites invasion at some known sites. (8.1.4)		
41	Manulea bicolor	Bicolored moth	Terrestrial Insect	Lepidoptera	III	c	Boreal Forests	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
42	Cerma cora	Bird dropping moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Beaches and Dunes	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

1	A	B	C	D	E	F	G	H	L	P	T	U	V
	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
43	Euphyes conspicua	Black dash	Terrestrial Insect	Lepidoptera	II	c	Non-tidal Wetlands	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or moving may be needed to retard woody succession (7.3.2)		
44	Papaipema beeriana	Blazing star stem borer	Terrestrial Insect	Lepidoptera	I	a	Grasslands, Savannas	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or moving may be needed to retard woody succession (7.3.2)		
45	Brachionycha borealis	Boreal Fan Moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
46	Erastria coloraria	Broad-lined erastria	Terrestrial Insect	Lepidoptera	II	c	Forests and Woodlands, Shrublands, Glades and Barrens	1.1.2, 8.2.2, 7.3.2	Low-Density Housing Areas / Increased Grazing by Vertebrates / Vegetation Succession	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / e.g., increased grazing by white-tailed deer and snow geese. / Natural vegetation succession causing habitat loss for species of early successional habitats.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High density deer populations consume larval hostplant (New Jersey tea) (8.2.2), Periodic fires or selective logging may be needed to retard woody succession (7.3.2)	Timbered forested uplands	
47	Lycaena hylus	Bronze copper	Terrestrial Insect	Lepidoptera	IV	c	Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
48	Anaplectoides brunneomedia	Brown-lined dart moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 11.1.1, 5.3.1	Low-Density Housing Areas / Changes in Vegetation Communities / Complete Removal of the Forest Cover	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM).	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1), Complete removal of forest habitat for logging would render the habitat non-viable for this species. (5.3.1)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
49	Pseudanopthalmus hortulanus	Burkes Garden cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
50	Leucania calidior	Cane wainscot	Terrestrial Insect	Lepidoptera	III	c	Riparian and Floodplains, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		cane (Arundinaria) specialist
51	Amblyscirtes carolina	Carolina roadside-skipper	Terrestrial Insect	Lepidoptera	III	c	Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		cane (Arundinaria) specialist
52	Cicindela limbalis	Common Claybank Tiger Beetle	Terrestrial Insect	Coleoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Timbered forested uplands	
53	Pseudanopthalmus intersectus	Crossroads cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
54	Pseudanopthalmus hirsutus	Cumberland Gap cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
55	Speranza ribearia	Currant Spanworm Moth	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		

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	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
56	Papaipema duplicata	Dark stoneroot borer moth	Terrestrial Insect	Lepidoptera	II	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Complete removal of forest habitat for logging would render the habitat non-viable for this species.(5.3.1)		
57	Rhadinoceraea zigadenusae	Death-camas Sawfly	Terrestrial Insect	Ins-Hymenoptera	II	b	Glades and Barrens	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	Need disturbance to keep fen habitat open (fire, woody vegetation removal, etc.) (7.3.2)		Hostplant is very rare in Virginia, so the sawfly's fate is related to that of death camas.
58	Pseudanopthalmus deceptivus	Deceptive cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
59	Pseudanopthalmus delicatus	Delicate cave beetle	Terrestrial Insect	Coleoptera	III	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
60	Speyeria diana	Diana fritillary	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Complete removal of forest habitat for logging would render the habitat non-viable for this species.(5.3.1)		
61	Acronicta dolli	Doll's dagger moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
62	Graphiphora augur	Double Dart Moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Non-tidal Wetlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		

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	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
63	Euphyes dukesi	Dukes' skipper	Terrestrial Insect	Lepidoptera	II	c	Non-tidal Wetlands	1.1.2, 11.1,	Low-Density Housing Areas / Habitat Shifting and Alteration /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in habitat composition or location /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), May be susceptible to rising sea levels resulting from climate change. (11.1)		
64	Erora laeta	Early hairstreak	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Complete removal of forest habitat for logging would render the habitat non-viable for this species.(5.3.1)		
65	Satyrium edwardsii	Edwards' hairstreak	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands, Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Timbered forested uplands	
66	Pheosidea elegans	Elegant Prominent	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
67	Osmia felti	Felt's mason bee	Terrestrial Insect	Ins-Hymenoptera	IV	c	Forests and Woodlands, Glades and Barrens,	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
68	Sphinx franckii	Franck's sphinx	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
69	Macropis ciliata	Fringed loosestrife oil-collecting bee	Terrestrial Insect	Ins-Hymenoptera	IV	c	Glades and Barrens	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		

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	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
70	Callophrys irus	Frosted elfin	Terrestrial Insect	Lepidoptera	I	a	Forests and Woodlands, Glades and Barrens	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or selective logging may be needed to retard woody succession (7.3.2)	Timbered forested uplands	
71	Ellipsoptera lepida	Ghost tiger beetle	Terrestrial Insect	Coleoptera	II	c	Beaches and Dunes	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
72	Cymatophora approximaria	Giant Gray Moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
73	Anaea andria	Goated Leafwing	Terrestrial Insect	Lepidoptera	II	c	Forests and Woodlands, Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
74	Drasteria graphica	Graphic moth	Terrestrial Insect	Lepidoptera	III	c	Beaches and Dunes	1.1.2, 11.1,	Low-Density Housing Areas / Habitat Shifting and Alteration /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in habitat composition or location /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), May be susceptible to rising sea levels resulting from climate change. (11.1)		
75	Arctia caja	Great Tiger Moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
76	Chlosyne harrisii	Harris's checkerspot	Terrestrial Insect	Lepidoptera	III	c	Grasslands, Riparian and Floodplains, Non-tidal Wetlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)	Grassland pastures	
77	Catocala herodias gerhardi	Herodias or pine barrens underwing	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Glades and Barrens	1.1.2, 7.1.2,	Low-Density Housing Areas / Suppression in the Fire Regime /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Occurs in barren habitats that need periodic fire (7.1.2)		
78	Callophrys hesseli	Hessel's hairstreak	Terrestrial Insect	Lepidoptera	I	c	Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		Atlantic white cedar specialist
79	Pseudanopthalmus hoffmani	Hoffman's cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
80	Pseudanopthalmus holsingeri	Holsinger's cave beetle	Terrestrial Insect	Coleoptera	I	b	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
81	Syngrapha alias	Hooked silver Y moth	Terrestrial Insect	Lepidoptera	III	c	Boreal Forests	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
82	Copris howdeni	Howden's copris	Terrestrial Insect	Coleoptera	III	c	Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
83	Pseudanopthalmus hubbardi	Hubbard's cave beetle	Terrestrial Insect	Coleoptera	I	b	Caves and Karst	1.1.2, 6.1.7,	Low-Density Housing Areas / Caving /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Commercial and residential developments in close proximity to a commercial cave are potential threats. Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Known only from a commercial cave; heavy human visitation is a continuing threat to this species. (6.1.7)		
84	Pseudanopthalmus hubrichti	Hubricht's cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
85	Brachyanorpa jeffersoni	Jefferson's short-nosed scorpionfly	Terrestrial Insect	Mecoptera	II	c	Forests and Woodlands, Boreal Forests	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
86	Satyrrium kingi	King's hairstreak	Terrestrial Insect	Lepidoptera	III	c	Riparian and Floodplains, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
87	Lithophane lemmeri	Lemmer's pinion moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
88	Bombus citrinus	Lemon cuckoo bumble bee	Terrestrial Insect	Ins-Hymenoptera	IV	a	Forests and Woodlands, Grasslands, Shrublands, Transportation Networks	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)	Grassland pastures, shrubland pastures	Nest parasite of other Bombus species, so fate related to its hosts

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
89	Pseudanopthalmus cordicollis	Little kennedy cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
90	Metria amella	Live oak metria	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands, Beaches and Dunes	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
91	Polites mystic	Long dash	Terrestrial Insect	Lepidoptera	III	c	Grasslands, Riparian and Floodplains, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Grassland pastures, shrubland pastures	
92	Pseudanopthalmus longiceps	Long-headed cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
93	Pseudanopthalmus virginicus	Maiden spring cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2, 4.2.2,	Low-Density Housing Areas / Oil and Gas Pipelines /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / infrastructure network for transporting oil and natural gas products aboveground or underground, including seismic lines, but excluding extraction sites (Threat 3.1) /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2) A single cave endemic potentially threatened by a nearby gas pipeline.(4.2.2)		
94	Catocala marmorata	Marbled underwing	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Complete removal of forest habitat for logging would render the habitat non-viable for this species.(5.3.1)		
95	Hydraena maureenae	Maureen's shale stream beetle	Terrestrial Insect	Coleoptera	III	c	Riparian and Floodplains, Creeks and Rivers	7.3.3, 9.3.2,	Natural Erosion and Sedimentation / Soil Erosion, Sedimentation /	Removal, transport and deposition of sediments that is caused by natural erosional processes. To be distinguished from the transport of sediments that is associated with tides (Threat 4.3.1), or by drainage systems in agriculture (Threat 7.2.5) and forestry (Threat 7.2.6). / Erosion and sedimentation that are due to agricultural or silvicultural activities, regardless of the presence of local drainage systems (threat 7.2.4 and 7.2.5). /	Need to maintain good water quality of stream habitats (7.3.3), Follow BMPs to limit erosion and sedimentation (9.3.2)		

1	A	B	C	D	E	F	G	H	L	P	T	U	V
	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
96	Euchlaena milnei	Milne's euchlaena moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Complete removal of forest habitat for logging would render the habitat non-viable for this species.(5.3.1)		
97	Neonympha mitchellii	Mitchell's satyr	Terrestrial Insect	Lepidoptera	I	a	Non-tidal Wetlands	1.1.2, 2, 7.3.2	Low-Density Housing Areas / Agriculture and Aquaculture / Vegetation Succession	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Threats from agricultural activities, such as the expansion and intensification of agriculture and livestock farming, including silviculture, mariculture, and aquaculture and related infrastructures. This includes the initial conversion of habitat (deforestation, filling/excavation, draining of wetlands, etc.) that is associated with cultivation or infrastructure development, as well as uses and practices (intensification of agricultural practices, use of machinery, etc.), but not the transport of the resources that are produced, crop irrigation, of the resources that are produced. / Natural vegetation succession causing habitat loss for species of early successional habitats.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Avoid draining or ditching of sedge-dominated wetlands in livestock pastures (2), Need to retard woody invasion of sedge wetlands (7.3.2)	Non-tidal wetland pastures	
98	Danaus plexippus plexippus	Monarch butterfly	Terrestrial Insect	Lepidoptera	IV	a	Forests and Woodlands, Grasslands, Shrublands, Savannas, Glades and Barrens, Riparian and Floodplains, Shorelines, Beaches and Dunes, Transportation Networks	7.3.2, 8.3.1, 1.1.2	Vegetation Succession / Genetic Material from Agriculture / Low-Density Housing Areas	Natural vegetation succession causing habitat loss for species of early successional habitats. / e.g., pesticide-resistant cereals/forages, use of genetically modified insects for biocontrol. / Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges.	Planting of milkweed (larval hostplant) has been proposed as an important management action for this species (7.3.2), Genetically modified crops have been identified as a threat to monarch populations. Also, the wintering grounds (Mexico) are highly vulnerable to habitat destruction (8.3.1), Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Grassland pastures, shrubland pastures, savanna pastures	
99	Erynnis martialis	Mottled duskywing	Terrestrial Insect	Lepidoptera	I	c	Forests and Woodlands, Shrublands, Savannas, Glades and Barrens	1.1.2, 8.2.2, 7.3.2	Low-Density Housing Areas / Increased Grazing by Vertebrates / Vegetation Succession	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / e.g., increased grazing by white-tailed deer and snow geese. / Natural vegetation succession causing habitat loss for species of early successional habitats.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High density deer populations consume larval hostplant (New Jersey tea) (8.2.2), Periodic fires or selective logging may be needed to retard woody succession (7.3.2)	Timbered forested uplands	
100	Pseudanophthalmus limicola	Mud-dwelling cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Known cave sites are in close proximity to an interstate highway and vulnerable to increased population growth and development in the area. Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
101	<i>Pseudanopthalmus pontis</i>	Natural Bridge cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2, 6.1.7,	Low-Density Housing Areas / Caving /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Residential development in close proximity to known caves is a potential threat. Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2). Human visitation to a commercial cave inhabited by this species is a continuing threat. (6.1.7)		
102	<i>Pseudanopthalmus nelsoni</i>	Nelson's cave beetle	Terrestrial Insect	Coleoptera	III	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
103	<i>Apodrepanulatrix liberaria</i>	New Jersey tea inchworm	Terrestrial Insect	Lepidoptera	II	c	Forests and Woodlands, Shrublands, Glades and Barrens	1.1.2, 8.2.2, 7.3.2	Low-Density Housing Areas / Increased Grazing by Vertebrates / Vegetation Succession	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / e.g., increased grazing by white-tailed deer and snow geese. / Natural vegetation succession causing habitat loss for species of early successional habitats.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2). High density deer populations consume larval hostplant (New Jersey tea) (8.2.2). Periodic fires or selective logging may be needed to retard woody succession (7.3.2)	Timbered forested uplands	
104	<i>Pseudanopthalmus egberti</i>	New River Valley cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
105	<i>Habroscelimorpha dorsalis dorsalis</i>	Northeastern beach tiger beetle	Terrestrial Insect	Coleoptera	I	a	Beaches and Dunes	1.1.1, 1.1.2, 11.1	Dense Housing and Urban Areas / Low-Density Housing Areas / Habitat Shifting and Alteration	Medium- to high-density development for residential use and buildings for related services. Allows very little to no maintenance of ecological functions. E.g., urban areas, suburbs, villages, schools, libraries, seniors' housing, hospitals / Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in habitat composition or location	Requires natural beaches, so it is important to limit shoreline hardening, riprap, breakwaters, etc. (1.1.1). Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2). Susceptible to rising sea levels resulting from climate change. (11.1)		
106	<i>Cicindela patruela patruela</i>	Northern barrens tiger beetle	Terrestrial Insect	Coleoptera	II	c	Forests and Woodlands, Glades and Barrens	1.1.2, 6.1.1,	Low-Density Housing Areas / Motor Vehicles /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Using recreational motor vehicles. E.g., ATVs, motocross motorcycles, snowmobiles. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2). ORV traffic within known sites destroys adults and larvae (6.1.1)		
107	<i>Calephelis borealis</i>	Northern metalmark	Terrestrial Insect	Lepidoptera	II	c	Forests and Woodlands, Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
108	Satyrrium favonius ontario	Northern oak hairstreak	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands, Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Timbered forested uplands	
109	Phyciodes cocyta	Northern Pearly Crescent	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
110	Euchloe olympia	Olympia marble	Terrestrial Insect	Lepidoptera	II	c	Glades and Barrens	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
111	Cicindela abdominalis	Orange-bellied tiger beetle	Terrestrial Insect	Coleoptera	I	b	Savannas, Glades and Barrens	7.1.2	Suppression in the Fire Regime / /	Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. / /	Requires open sandy habitats with periodic fire (7.1.2)	Timbered forested uplands	
112	Euphyes pilatka	Palatka skipper	Terrestrial Insect	Lepidoptera	I	c	Tidal Creeks and Rivers, Large Tidal Rivers	1.1.2, 11.1,	Low-Density Housing Areas / Habitat Shifting and Alteration /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in habitat composition or location /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), May be susceptible to rising sea levels resulting from climate change. (11.1)		
113	Macropis patellata	Patellar oil-collecting bee	Terrestrial Insect	Ins-Hymenoptera	I	c	Grasslands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
114	Nomia maneei	Pearly-banded bee	Terrestrial Insect	Ins-Hymenoptera	I	c	Savannas	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
115	Pseudanopthalmus petrunkevitchi	Petrunkevitch's cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2, 6.1.7,	Low-Density Housing Areas / Caving /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2) One of 2 known sites is a tourist cave, thus potentially impacted by human visitation. (6.1.7)		

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
116	Zale lunifera	Pine barrens zale moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Glades and Barrens	1.1.2, 7.1.2,	Low-Density Housing Areas / Suppression in the Fire Regime /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Occurs in barren habitats that need periodic fire (7.1.2)	Timbered forested uplands	
117	Derrima stellata	Pink star moth	Terrestrial Insect	Lepidoptera	II	c	Beaches and Dunes	1.1.2, 11.1,	Low-Density Housing Areas / Habitat Shifting and Alteration /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in habitat composition or location /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), May be susceptible to rising sea levels resulting from climate change. (11.1)		
118	Colias interior	Pink-edged sulphur	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Grasslands, Shrublands, Glades and Barrens	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
119	Coelodasys apicalis	Plain schizura	Terrestrial Insect	Lepidoptera	III	c	Shrublands, Savannas	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
120	Problema bulenta	Rare skipper	Terrestrial Insect	Lepidoptera	II	c	Large Tidal Rivers, Tidal Wetlands	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Rising sea levels due to climate change may alter salinity and thus vegetation composition of freshwater tidal marshes (7.3.2)		
121	Heliomata infulata	Rare spring moth	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)	Timbered forested uplands	

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
122	Amblyscirtes reversa	Reversed roadside-skipper	Terrestrial Insect	Lepidoptera	III	c	Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		cane (Arundinaria) specialist
123	Cicindela ancocisconensis	Riverbank tiger beetle	Terrestrial Insect	Coleoptera	III	c	Riparian and Floodplains	1.1.2, 9.3.2,	Low-Density Housing Areas / Soil Erosion, Sedimentation /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Erosion and sedimentation that are due to agricultural or silvicultural activities, regardless of the presence of local drainage systems (threat 7.2.4 and 7.2.5). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Follow BMPs to limit erosion and sedimentation (9.3.2)		
124	Loscopia roblei	Roble's cane borer	Terrestrial Insect	Lepidoptera	II	c	Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
125	Pseudanopthalmus rotundatus	Rotund cave beetle	Terrestrial Insect	Coleoptera	II	b	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
126	Bombus affinis	Rusty-patched bumble bee	Terrestrial Insect	Ins-Hymenoptera	I	a	Forests and Woodlands, Grasslands, Shrublands	1.1.2, 9.3.3, 8.4	Low-Density Housing Areas / Herbicides and Pesticides / Pathogens	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. / Diseases caused by various taxa of pathogenic micro-organisms living within hosts.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)	Grassland pastures, shrubland pastures	Rangewide decline may be due to a pathogen
127	Pseudanopthalmus sanctipauli	Saint Paul cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
128	Syngrapha rectangula	Salt-and-pepper Looper Moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands, Boreal Forests	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
129	Hylaeus saniculae	Sanicle yellow-faced bee	Terrestrial Insect	Ins-Hymenoptera	IV	c	n/a	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
130	Sphaeroderus schaumii	Schaum's ground beetle	Terrestrial Insect	Coleoptera	III	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)Maintain forest cover; avoid clearcutting (5.3.1)		
131	Papaipema duovata	Seaside Goldenrod Stem Borer	Terrestrial Insect	Lepidoptera	III	c	Beaches and Dunes	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), May be susceptible to rising sea levels resulting from climate change. (11.1.1)		
132	Pseudanopthalmus sericus	Silken cave beetle	Terrestrial Insect	Coleoptera	I	b	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
133	Boloria selene	Silver-bordered fritillary	Terrestrial Insect	Lepidoptera	III	c	Riparian and Floodplains, Non-tidal Wetlands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)	Grassland pastures	
134	Pseudanopthalmus potomaca potomaca	South branch valley cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
135	Basilis boardmani	Southeastern myotis bat fly	Terrestrial Insect	Diptera	III	c	Forests and Woodlands, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Protect coastal bottomland hardwood forests from development. (1.1.2)		Bat ectoparasite. Fate related to bat population.
136	Bombus fraternus	Southern plains bumble bee	Terrestrial Insect	Ins-Hymenoptera	II	a	Forests and Woodlands, Shrublands, Savannas, Urban Lands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)	Grassland pastures, shrubland pastures	
137	Rheumaptera hastata	Spear-marked black moth	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands, Boreal Forests	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)		
138	Pseudanopthalmus punctatus	Spotted cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
139	<i>Pseudanopthalmus quadratus</i>	Straley's cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
140	<i>Callosamia securifera</i>	Sweetbay Silkmoth	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands, Riparian and Floodplains, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
141	<i>Dargida rubripennis</i>	The pink streak	Terrestrial Insect	Lepidoptera	IV	c	Grasslands, Shrublands, Savannas	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Periodic fires or moving may be needed to retard woody succession (7.3.2)		
142	<i>Hadena ectypa</i>	The starry campion moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
143	<i>Pseudanopthalmus parvicollis</i>	Thin-neck cave beetle	Terrestrial Insect	Coleoptera	I	b	Caves and Karst	1.1.2, 6.1.7,	Low-Density Housing Areas / Caving /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Residential development in close proximity to inhabited caves is a potential threat. Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), One of 2 known sites is a tourist cave, thus potentially impacted by human visitation.(6.1.7)		
144	<i>Pseudanopthalmus thomasi</i>	Thomas' cave beetle	Terrestrial Insect	Coleoptera	I	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Commercial and residential developments in close proximity to the known cave system are potential threats.Habitat protection is essential, so cooperation and education of land owners should be high priority.		
145	<i>Morrisonia triangula</i>	Triangle-barred woodgrain moth	Terrestrial Insect	Lepidoptera	III	c	Forests and Woodlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
146	Euphyes bimacula	Two-spotted skipper	Terrestrial Insect	Lepidoptera	III	c	Non-tidal Wetlands	1.1.2, 2,	Low-Density Housing Areas / Agriculture and Aquaculture /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Threats from agricultural activities, such as the expansion and intensification of agriculture and livestock farming, including silviculture, mariculture, and aquaculture and related infrastructures. This includes the initial conversion of habitat (deforestation, filling/excavation, draining of wetlands, etc.) that is associated with cultivation or infrastructure development, as well as uses and practices (intensification of agricultural practices, use of machinery, etc.), but not the transport of the resources that are produced, crop irrigation, of the resources that are produced. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Avoid draining or ditching of sedge-dominated wetlands in livestock pastures (2.)		
147	Pseudanopthalmus vicarius	Vicariant cave beetle	Terrestrial Insect	Coleoptera	II	c	Caves and Karst	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		
148	Ctenucha virginica	Virginia Ctenucha moth	Terrestrial Insect	Lepidoptera	III	c	Grasslands, Shrublands	1.1.2, 11.1.1,	Low-Density Housing Areas / Changes in Vegetation Communities /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), High elevation species that may be susceptible to rising temperatures from climate change. (11.1.1)	Grassland pastures, Shrubland pastures	
149	Pieris virginiensis	West Virginia white	Terrestrial Insect	Lepidoptera	IV	c	Forests and Woodlands	1.1.2, 11.1.4,	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Control garlic mustard (toxic to larvae) in areas where this species occurs (11.1.4)	Timbered forested uplands	
150	Ellipsoptera gratiosa	Whitish tiger beetle	Terrestrial Insect	Coleoptera	I	b	Glades and Barrens	7.1.2	Suppression in the Fire Regime / /	Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. / /	Requires open sandy habitats with periodic fire (7.1.2)		
151	Poanes yehl	Yehl Skipper	Terrestrial Insect	Lepidoptera	IV	c	Riparian and Floodplains, Non-tidal Wetlands	1.1.2	Low-Density Housing Areas / /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
152	Bombus fervidus	Yellow bumble bee	Terrestrial Insect	Ins-Hymenoptera	IV	a	Forests and Woodlands, Grasslands, Urban Lands, Croplands, Orchards	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)	Grassland pastures, shrubland pastures	
153	Papaipema astuta	Yellow stoneroot borer moth	Terrestrial Insect	Lepidoptera	II	c	Forests and Woodlands	1.1.2, 5.3.1,	Low-Density Housing Areas / Complete Removal of the Forest Cover /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM). /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Complete removal of forest habitat for logging would render the habitat non-viable for this species.(5.3.1)		
154	Bombus terricola	Yellow-banded bumble bee	Terrestrial Insect	Ins-Hymenoptera	II	a	Forests and Woodlands, Shrublands	1.1.2, 9.3.3, 11.3.3	Low-Density Housing Areas / Herbicides and Pesticides / Gradual Temperature Change	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. / e.g., altered sex-ratio in species relying upon a temperature dependent sex determination, reduction of dissolved oxygen that is available to fish species, earlier ice-free dates, thawing of permafrost affecting bird breeding sites.	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3) May be susceptible to rising temperatures from climate change. (11.3.3)		
155	Pygarctia abdominalis	Yellow-edged pygarctia moth	Terrestrial Insect	Lepidoptera	II	c	Glades and Barrens	1.1.2, 7.1.2,	Low-Density Housing Areas / Suppression in the Fire Regime /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Occurs in barren habitats that need periodic fire (7.1.2)		
156	Andrena chromotricha		Terrestrial Insect	Ins-Hymenoptera	IV	c	Grasslands, Shrublands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
157	Anthophora ursina		Terrestrial Insect	Ins-Hymenoptera	IV	c	n/a	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
158	Anthophorula michneri		Terrestrial Insect	Ins-Hymenoptera	III	c	n/a	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
159	Dianthidium simile		Terrestrial Insect	Ins-Hymenoptera	III	c	Shrublands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
160	Epeolus americanus		Terrestrial Insect	Ins-Hymenoptera	III	c	n/a	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		Nest parasite of Colletes bees, so fate related to its hosts
161	Lasioglossum raleighense		Terrestrial Insect	Ins-Hymenoptera	IV	c	Savannas	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
162	Megachile rubi		Terrestrial Insect	Ins-Hymenoptera	II	c	Savannas	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
163	Melitta eickworti		Terrestrial Insect	Ins-Hymenoptera	IV	c	Forests and Woodlands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		

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1	Scientific_Name	Common_Name	Grouping	Type	Tier	COR	Habitats	Threat_Code	Threat_Description	Threat_Long	Actions	Working_Lands	Notes
164	<i>Osmia chalybea</i>		Terrestrial Insect	Ins-Hymenoptera	IV	c	Grasslands, Savannas, Transportation Networks, Croplands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
165	<i>Pseudopanurgus virginicus</i>		Terrestrial Insect	Ins-Hymenoptera	III	c	n/a	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3) Rebuild of entire powerline at one known site (4.2.1)		
166	<i>Trachusa dorsalis</i>		Terrestrial Insect	Ins-Hymenoptera	II	c	Forests and Woodlands, Glades and Barrens	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)		
167	<i>Xylocopa micans</i>		Terrestrial Insect	Ins-Hymenoptera	IV	a	Forests and Woodlands, Shrublands	1.1.2, 9.3.3,	Low-Density Housing Areas / Herbicides and Pesticides /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Habitat protection is essential, so cooperation and education of land owners should be high priority. (1.1.2), Limit use of pesticides, especially neonicotinoids, near populations of all bees (9.3.3)	Shrubland pastures	