

Common Name:	Rusty-patched bumble bee	<i>SGCN – High Priority</i>
Scientific Name:	<i>Bombus affinis</i>	
Taxon:	Bees	

Federal Status:	Not Listed	Natural Heritage Program Rank:
New York Status:	Not Listed	Global: G1
		New York: SH
		Tracked: Yes

Synopsis:

Rusty-patched bumble bees (*Bombus affinis*) belong to the subgenus *Bombus*, which has been shown to be significantly more infected by the pathogen *Nosema bombi* than bumble bees of other subgenera (Cameron et al. 2011). Researchers believe this pathogen is largely responsible for the rapid (99-100%) decline of this species in most of the Northeast (Schweitzer and Sears 2013).

The last known NY record is from 1999, and the species appears to have not persisted in this or neighboring states (Richardson 2013, Yanega 2013). It is ranked as SH, state historical, in NY and highly imperiled globally. The historical native range spanned from Maine along the east coast southward to Georgia and westward to Nebraska and Ontario. It is listed as SH throughout much of the East (NatureServe 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Rapid Recent Decline	Rapid Recent Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

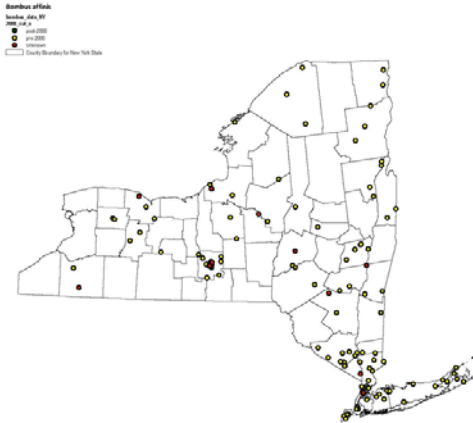
Habitat Discussion:

Bumble bees are generalist foragers and need nesting habitat in the spring, flowers for adult and larval nutrition throughout the spring and summer, and sites for queens to overwinter. Suitable habitat can occur in natural, agricultural, and urban areas and some species require forested habitat (Schweitzer et al. 2012). *B. affinis* is known to nest underground and feeds on sunflowers, honeysuckles, goldenrods, asters, *Vaccinium*, *Prunus*, and *Aesculus* (Colla et al. 2011).

Primary Habitat Type
Pasture/Hay

Distribution:

From a compilation of museum records, prior to 1988, there are records dating back to the 1800s from over 60 locations statewide. The last known record in New York is from 1999.



Richardson (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Pollution	Agricultural & Forestry Effluents (pesticides)	R	L	H
2. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (introduced pathogens from managed bee populations in greenhouses)	P	V	V
3. Climate Change & Severe Weather	Habitat Shifting & Alteration	W	L	V
4. Residential & Commercial Development	Housing & Urban Areas (habitat loss from development)	W	L	H

References Cited:

Cameron, S. A., J. D. Lozier, J. P. Strange, J. B. Koch, N. Cordes, L. F. Solter, and T. L. Griswold. 2011. Patterns of widespread decline in North American bumble bees. *Proceedings of the National Academy of Sciences* 108:662–667.

Colla, S. R., and L. Packer. 2008. Evidence for decline in eastern North American bumblebees (Hymenoptera: Apidae), with special focus on *Bombus affinis* Cresson. *Biodiversity and Conservation* 17:1379–1391.

Colla, S., L. Richardson, and P. Williams. 2011. Bumble bees of the eastern United States. USDA Forest Service and the Pollinator Partnership. 104 pages.

NatureServe. 2013. NatureServe Explorer: an online encyclopedia of life [web application] Version 7.1 [Online]. Available: <http://natureserve.org/explorer>.

Richardson, L. 2013. Compilation of specimen records for *Bombus* species of North America from the American Museum of Natural History, Harvard Museum of Comparative Zoology, among several other museums.

Schweitzer, D., and N. Sears. 2013, May 1. Bumble bee ranking guidelines. NatureServe, Arlington, VA.

Yanega, D. 2013. Compilation of specimen records for *Bombus* species of North America from the University of California Riverside Entomology Research Museum, the Essig Museum of Entomology, University of California Berkeley, the Natural History Museum of Los Angeles County and the California State Collection of Arthropods.

Common Name: Ashton's cuckoo bumble bee *SGCN – High Priority*
Scientific Name: *Bombus ashtoni*
Taxon: Bees

Federal Status: Not Listed **Natural Heritage Program Rank:**
New York Status: Not Listed Global: GH
New York: SH
Tracked: Yes

Synopsis:

Ashton's cuckoo bumble bee (*Bombus ashtoni*) belongs to the subgenus *Psithyrus*, which are obligate nest parasites of other bumble bee species. In addition to habitat loss, pesticides, and urbanization as long-term threats (Schweitzer et al. 2012), Cameron et al. (2011) showed a higher proportion of *Bombus* and *Thoracobombus* individuals infected by the pathogen *Nosema bombi* than other *Bombus* with stable global populations. Since this species is a social parasite of *B. affinis* and *B. terricola* in the subgenus *Bombus* (Colla et al. 2011), it may have a higher threat impact from this pathogen. Researchers believe this pathogen is largely responsible for the rapid (99-100%) decline of *Bombus* and *Thoracobomus* species in most of the Northeast (Schweitzer and Sears 2013).

The last known NY record is from 1994 (Richardson 2013, Yanega 2013) and the species appears to have not persisted in this or neighboring states, suffering catastrophic decline in recent years. It is globally and state historical.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Rapid Recent Decline	Rapid Recent Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

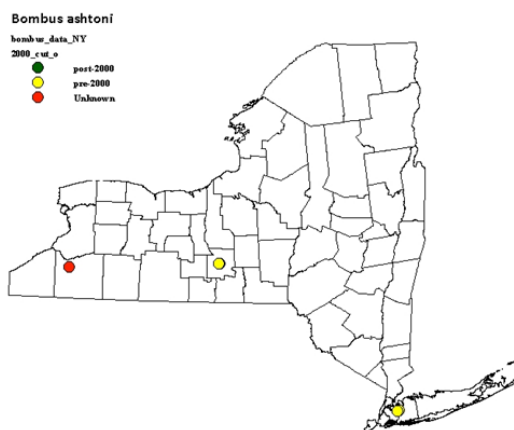
Habitat Discussion:

Bumble bees are generalist foragers and need nesting habitat in the spring, flowers for adult and larval nutrition throughout the spring and summer, and sites for queens to overwinter. Suitable habitat can occur in natural, agricultural, and urban areas and some species require forested habitat (Schweitzer et al. 2012). *B. ashtoni* is known to feed on goldenrods, clovers, and *Vaccinium* and parasitize *B. affinis* and *B. terricola* (Colla et al. 2011).

Primary Habitat Type
Pasture/Hay

Distribution:

Three location are known from prior to 1990: Ithaca (Tompkins County), Cattaraugus County, and Queens. The last known record is from 1994.



Richardson (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Pollution	Agricultural & Forestry Effluents (pesticides)	R	L	H
2. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (introduced pathogens from managed bee populations in greenhouses)	P	V	V
3. Climate Change & Severe Weather	Habitat Shifting & Alteration	W	L	V
4. Residential & Commercial Development	Housing & Urban Areas (habitat loss from development)	W	L	H

References Cited:

Cameron, S. A., J. D. Lozier, J. P. Strange, J. B. Koch, N. Cordes, L. F. Solter, and T. L. Griswold. 2011. Patterns of widespread decline in North American bumble bees. *Proceedings of the National Academy of Sciences* 108:662–667.

Colla, S., L. Richardson, and P. Williams. 2011. *Bumble bees of the eastern United States*. USDA Forest Service and the Pollinator Partnership. 104 pages.

Richardson, L. 2013. *Compilation of specimen records for Bombus species of North America from the American Museum of Natural History, Harvard Museum of Comparative Zoology, among several other museums*.

Schweitzer, D. F., N. A. Capuano, B. E. Young, and S. R. Colla. 2012. *Conservation and Management of North American Bumble Bees*.

Common Name: Northern amber bumble bee *SGCN – High Priority*
Scientific Name: *Bombus borealis*
Taxon: Bees

Federal Status: Not Listed **Natural Heritage Program Rank:**
New York Status: Not Listed Global: G4G5
New York: S1
Tracked: Yes

Synopsis:

Northern amber bumble bees (*Bombus borealis*) belong to the subgenus *Subterraneobombus*, which are not experiencing higher susceptibility to the *Nosema bombi* pathogen like *Bombus* and *Thoracobomus* are, but may be experiencing other threats of habitat loss, pesticides, and urbanization (Schweitzer et al. 2012) as well as pollution and invasive species. NY is near the southern range margin for this species, which is known from the northern US and Canada (NatureServe 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Rapid Recent Decline	Unknown
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

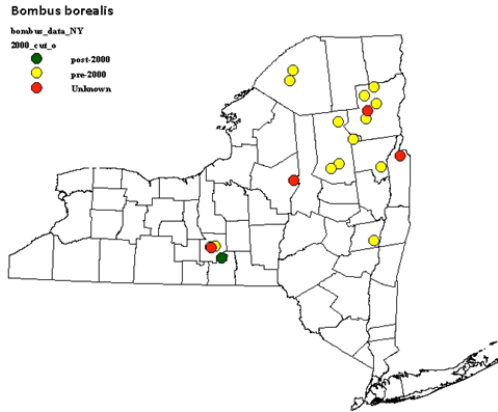
Habitat Discussion:

Bumble bees are generalist foragers and need nesting habitat in the spring, flowers for adult and larval nutrition throughout the spring and summer, and sites for queens to overwinter. Suitable habitat can occur in natural, agricultural, and urban areas and some species require forested habitat (Schweitzer et al. 2012). *B. borealis* is known to nest underground and feeds on thistles, vetches, asters, *Prunella*, *Symphytum officinale*, and *Eupatorium* (Colla et al. 2011).

Primary Habitat Type
Pasture/Hay

Distribution:

There is a single record from central NY post-2000 as well as the 1990s (Richardson 2013, Yanega 2013). The species was primarily known from the Adirondacks, although there are no records from there since 1980 despite sampling effort. Vermont survey efforts in 2012 suggest this species could be stable to slightly increasing in this neighboring state (Vermont Center for Ecostudies 2013); however, it appears to never have been a common species in NY and the data suggest a strong decline.



Records of northern amber bumble bee in New York (Richardson 2013).

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (introduced pathogens from managed bee populations in greenhouses)	P	V	V
Climate Change & Severe Weather	Habitat Shifting & Alteration	W	L	V
Residential & Commercial Development	Housing & Urban Areas (habitat loss from development)	W	L	H
Pollution	Agricultural & Forestry Effluents (pesticides)	R	L	H

References Cited:

Colla, S., L. Richardson, and P. Williams. 2011. Bumble bees of the eastern United States. USDA Forest Service and the Pollinator Partnership. 104 pages.

NatureServe. 2013. NatureServe Explorer: an online encyclopedia of life [web application] Version 7.1 [Online]. Available: <http://natureserve.org/explorer>.

Richardson, L. 2013. Compilation of specimen records for Bombus species of North America from the American Museum of Natural History, Harvard Museum of Comparative Zoology, among several other museums.

Schweitzer, D. F., N. A. Capuano, B. E. Young, and S. R. Colla. 2012. Conservation and Management of North American Bumble Bees.

Vermont Center for Ecostudies. 2013. Vermont Bumblebee Survey Summary. VES News, the Newsletter of the Vermont Entomological Society 78.

Yanega, D. 2013. Compilation of specimen records for *Bombus* species of North America from the University of California Riverside Entomology Research Museum, the Essig Museum of Entomology, University of California Berkeley, the Natural History Museum of Los Angeles County and the California State Collection of Arthropods.

Common Name:	Yellow bumble bee	<i>SGCN – High Priority</i>
Scientific Name:	<i>Bombus fervidus</i>	
Taxon:	Bees	

Federal Status:	Not Listed	Natural Heritage Program Rank:
New York Status:	Not Listed	Global: G4
		New York: S1
		Tracked: Yes

Synopsis:

Yellow bumble bees (*Bombus terricola*) belong to the subgenus *Thoracombus*, which has been shown to be significantly more infected by the pathogen *Nosema bombi* than bumble bees of other subgenera (Cameron et al. 2011). Researchers believe this pathogen is largely responsible for the rapid (99-100%) decline of this species in most of the Northeast (Schweitzer and Sears 2013). They are distributed spottily in states and provinces across the U.S. and Canada, but many states and provinces have not yet assessed their conservation status (NatureServe 2013).

This species appears to be persisting in NYC and Long Island and a couple of disjunct populations in upstate NY, but was once widespread statewide (Richardson 2013 and Yanega 2013). While it has been declining more gradually statewide over the long term, the short-term trend indicates a rapid decline statewide. The current actual number of NY occurrences is estimated to be between 11 and 110 (Schweitzer and Sears 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Rapid Recent Decline	Rapid Recent Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

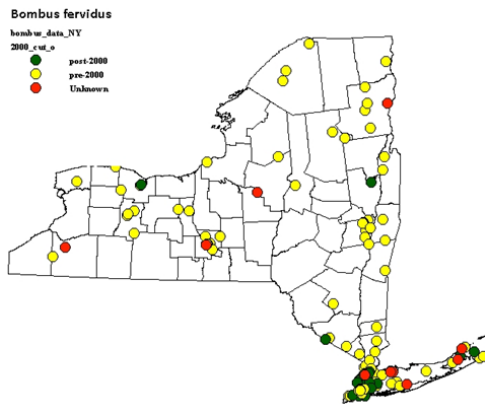
Habitat Discussion:

Bumble bees are generalist foragers and need nesting habitat in the spring, flowers for adult and larval nutrition throughout the spring and summer, and sites for queens to overwinter. Suitable habitat can occur in natural, agricultural, and urban areas and some species require forested habitat (Schweitzer et al. 2012). *B. fervidus* is known to nest on ground surfaces and underground and feeds on honeysuckles, thistles, clovers, vetches, bee balms, loosestrifes, and *Penstemon* (Colla et al. 2011).

Primary Habitat Type
Pasture/Hay

Distribution:

There are 11 locations where the species has been recorded since 2009 from museum records. These were recorded from Rochester, NYC, and LI (Richardson 2013). The actual number of NY occurrences is estimated to be between 11 and 110 (Schweitzer and Sears 2013).



Richardson (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (introduced pathogens from managed bee populations in greenhouses)	P	V	V
2. Climate Change & Severe Weather	Habitat Shifting & Alteration	W	L	V
3. Residential & Commercial Development	Housing & Urban Areas (habitat loss from development)	W	L	H
4. Pollution	Agricultural & Forestry Effluents (pesticides)	R	L	H

References Cited:

Cameron, S. A., J. D. Lozier, J. P. Strange, J. B. Koch, N. Cordes, L. F. Solter, and T. L. Griswold. 2011. Patterns of widespread decline in North American bumble bees. *Proceedings of the National Academy of Sciences* 108:662–667.

Colla, S., L. Richardson, and P. Williams. 2011. *Bumble bees of the eastern United States*. USDA Forest Service and the Pollinator Partnership. 104 pages.

NatureServe. 2013. NatureServe Explorer: an online encyclopedia of life [web application] Version 7.1 [Online]. Available: <http://natureserve.org/explorer>.

Richardson, L. 2013. Compilation of specimen records for *Bombus* species of North America from the American Museum of Natural History, Harvard Museum of Comparative Zoology, among several other museums.

Schweitzer, D. F., N. A. Capuano, B. E. Young, and S. R. Colla. 2012. Conservation and Management of North American Bumble Bees.

Schweitzer, D., and N. Sears. 2013, May 1. Bumble bee ranking guidelines. NatureServe, Arlington, VA.

Yanega, D. 2013. Compilation of specimen records for *Bombus* species of North America from the University of California Riverside Entomology Research Museum, the Essig Museum of Entomology, University of California Berkeley, the Natural History Museum of Los Angeles County and the California State Collection of Arthropods.

Common Name: Yellow-banded bumble bee *SGCN – High Priority*
Scientific Name: *Bombus terricola*
Taxon: Bees

Federal Status: Not Listed **Natural Heritage Program Rank:**
New York Status: Not Listed Global: G2G4
New York: S1
Tracked: Yes

Synopsis:

Yellow-banded bumble bees (*Bombus terricola*) belong to the subgenus *Bombus*, which has been shown to be significantly more infected by the pathogen *Nosema bombi* than bumble bees of other subgenera (Cameron et al. 2011). Researchers believe this pathogen is largely responsible for the rapid (99-100%) decline of this species in most of the Northeast (Schweitzer and Sears 2013). There are few records of this species located in NY since 2009 (and even 2000) despite increased survey effort. There is evidence of sharp decline in the population both short-term and long-term (Richardson 2013 and Yanega 2013). The current actual number of NY occurrences is estimated to be between 8 and 100 (Schweitzer and Sears 2013). They are distributed from Nova Scotia to Florida in eastern North America (Discover Life 2013), but many states and provinces have not yet assessed their conservation status (NatureServe 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Rapid Recent Decline	Rapid Recent Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

Habitat Discussion:

Bumble bees are generalist foragers and need nesting habitat in the spring, flowers for adult and larval nutrition throughout the spring and summer, and sites for queens to overwinter. Suitable habitat can occur in natural, agricultural, and urban areas and some species require forested habitat (Schweitzer et al. 2012). *B. terricola* is known to nest underground and feeds on willows, roses, honeysuckles, goldenrods, asters, *Vaccinium*, and *Rubus* (Colla et al. 2011).

Primary Habitat Type
Pasture/Hay

Distribution:

There are four locations where the species has been recorded since 2009 from museum records. These were recorded from Albany, Essex, and Franklin counties (Richardson 2013). The actual number of NY occurrences is estimated to be between 8 and 40 (Schweitzer and Sears 2013).

Bombus terricola
 1998-2000
 2001-2002
 2003-2004
 2005-2006
 2007-2008
 2009-2010
 2011-2012
 2013-2014
 2015-2016
 2017-2018
 2019-2020
 2021-2022
 2023-2024



Richardson (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Pollution	Agricultural & Forestry Effluents (pesticides)	R	L	H
2. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (introduced pathogens from managed bee populations in greenhouses)	P	V	V
3. Climate Change & Severe Weather	Habitat Shifting & Alteration	W	L	V
4. Residential & Commercial Development	Housing & Urban Areas (habitat loss from development)	W	L	H

References Cited:

Cameron, S. A., J. D. Lozier, J. P. Strange, J. B. Koch, N. Cordes, L. F. Solter, and T. L. Griswold. 2011. Patterns of widespread decline in North American bumble bees. *Proceedings of the National Academy of Sciences* 108:662–667.

Colla, S., L. Richardson, and P. Williams. 2011. *Bumble bees of the eastern United States*. USDA Forest Service and the Pollinator Partnership. 104 pages.

Discover Life. 2013. *Bombus terricola*. [Online]. Available: http://www.discoverlife.org/mp/20m?act=make_map&kind=Bombus+terricola. [Accessed: 24-Oct-2013].

NatureServe. 2013. NatureServe Explorer: an online encyclopedia of life [web application] Version 7.1 [Online]. Available: <http://natureserve.org/explorer>.

Richardson, L. 2013. Compilation of specimen records for *Bombus* species of North America from the American Museum of Natural History, Harvard Museum of Comparative Zoology, among several other museums.

Schweitzer, D. F., N. A. Capuano, B. E. Young, and S. R. Colla. 2012. Conservation and Management of North American Bumble Bees.

Schweitzer, D., and N. Sears. 2013, May 1. Bumble bee ranking guidelines. NatureServe, Arlington, VA.

Yanega, D. 2013. Compilation of specimen records for *Bombus* species of North America from the University of California Riverside Entomology Research Museum, the Essig Museum of Entomology, University of California Berkeley, the Natural History Museum of Los Angeles County and the California State Collection of Arthropods.

Common Name: American bumble bee
Scientific Name: *Bombus pensylvanicus*
Taxon: Bees

SGCN – High Priority

Federal Status: Not Listed
New York Status: Not Listed

Natural Heritage Program Rank:
 Global: G3G4
 New York: S1
 Tracked: Yes

Synopsis:

American bumble bees (*Bombus pensylvanicus*) belong to the subgenus (*Thoracobombus*), which has been shown to be significantly more infected by the pathogen *Nosema bombi* than bumble bees of other subgenera (Cameron et al. 2011). Researchers believe this pathogen is largely responsible for the rapid (99-100%) decline of this species in much of the Northeast (Schweitzer and Sears 2013). In NY, there is a single museum record from Saratoga County post-2000 and few records from the 1990s (Richardson 2013, Yanega 2013). The current actual number of NY occurrences is estimated to be between 0 and 10 (Schweitzer and Sears 2013). This species has suffered catastrophic decline in the 1990s to present in NY, but was once common statewide (Colla et al. 2012). They are distributed from Quebec to Florida in eastern North America (Discover Life 2013), but many states and provinces have not yet assessed its conservation status (NatureServe 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Rapid Recent Decline	Rapid Recent Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

Habitat Discussion:

Bumble bees are generalist foragers and need nesting habitat in the spring, flowers for adult and larval nutrition throughout the spring and summer, and sites for queens to overwinter. Suitable habitat can occur in natural, agricultural, and urban areas and some species require forested habitat (Schweitzer et al. 2012). *B. pensylvanicus* is known to nest on ground surfaces and feeds on vetches, clovers, goldenrods, *Hypericum* and *Eupatorium*, among others (Colla et al. 2011). Nest sites are within grassy tussocks or dense vegetation or within abandoned nests of small mammals (Goulson 2010).

Primary Habitat Type
Pasture/Hay

Distribution:

There is one location where the species has been recorded in Saratoga County in 2005, but there are no known records since then (Richardson 2013). The current actual number of NY occurrences is estimated to be between 0 and 10 (Schweitzer and Sears 2013).

Bombus terrestris
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Richardson (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1.Pollution	Agricultural & Forestry Effluents (pesticides)	R	L	H
2.Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (introduced pathogens from managed bee populations in greenhouses)	P	V	V
3. Residential & Commercial Development	Housing & Urban Areas (habitat loss from development)	W	L	H

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