



Aquatic And Terrestrial Snails

Murex

Boreotrophon truncatus

Priority 2 Species of Greatest Conservation Need (SGCN)

Class: Aquatic And Terrestrial Snails (*Gastropoda*)

Order: Mostly Sea Snails (*Neogastropoda*)

Family: Murex Snails (*Muricidae*)



General comments:

Members of the family Muricidae are predatory marine snails known for their often spiny, elaborately sculptured shells. Most species occur in warm or temperate seas, though a few extend into cooler North Atlantic waters. They prey on other mollusks and barnacles by drilling into shells, and have historically been harvested for the purple dye they produce.

No Species Conservation Range Maps Available

SGCN Priority Ranking - Designation Criteria:

Recent Significant Declines:	Murex is currently undergoing steep population declines, which has already led to, or if unchecked is likely to lead to, local extinction and/or range contraction. Notes: recent decline - Trott, in review; last record in Cobscook Bay 1973; climate change - Southward et al. 1995; Schiel et al. 2004; understudied as dredge by-catch, professional judgement
High Climate Change Vulnerability:	Vulnerability: 3, Confidence: , Reviewers:

Habitat Associations:

Formation: Intertidal

Macrogroup: Intertidal Gravel Shore

★ Primary Habitat	Habitat System: Lower Intertidal <i>assumed mating and egg-laying habitat, non-pelagic direct development, juvenile feeding habitat, adult feeding</i>
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Macrogroup: Intertidal Mudflat

★ Primary Habitat	Habitat System: Non-Vascular Mudflat <i>assumed mating and egg-laying habitat, non-pelagic direct development, juvenile feeding habitat, adult feeding habitat</i>
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Formation: Subtidal

Macrogroup: Subtidal Coarse Gravel Bottom

★ Primary Habitat	Habitat System: Coarse Gravel <i>assumed mating and egg-laying habitat, non-pelagic direct development, juvenile feeding habitat, adult feeding habitat, over-wintering habitat</i>
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Murex Boreotrophon truncatus**Priority 2 SGCN****Formation: Subtidal****Macrogroup: Subtidal Mud Bottom****★ Primary Habitat****Habitat System:** Unvegetated*assumed mating and egg-laying habitat, non-pelagic direct development, juvenile feeding habitat, adult feeding habitat, over-wintering habitat***Macrogroup: Subtidal Sand Bottom****★ Primary Habitat****Habitat System:** Unvegetated*assumed mating and egg-laying habitat, non-pelagic direct development, juvenile feeding habitat, adult feeding habitat, over-wintering habitat***Threats**

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

IUCN Level 1 Threat Biological Resource Use**IUCN Level 2 Threat: Fishing and Harvesting of Aquatic Resources****Severity:** High Severity**Actionability:** Highly Actionable

Notes: Large-scale, unintentional catch by commercial trawling reduces population size and subsequently results in local extinctions, impaired role of the functional group "predator," and subsequently results in decreased benthic diversity through trophic cascades and thus decreases the availability of food for other species. Large-scale incidental catch contributes to these effects. Likelihood is high (high certainty) and large scale (throughout the region where this species occurs). Actionability is low for incidental catch.

IUCN Level 1 Threat Pollution**IUCN Level 2 Threat: Agricultural and Forestry Effluents****Severity:** High Severity**Actionability:** Moderately Actionable

Notes: Loss of habitat due to excessive nutrients, toxic chemicals (including pesticides and chemical therapeutants), and/or sediments originating from aquaculture can reduce populations size. Direct effects could include toxicity of tributyl compounds shown in other gastropods. Likelihood is high (high certainty). Current spatial extent is expanding along coast along with development of the aquaculture industry, so actionability is moderate, i.e. the threat can be minimized in newly developing areas.

Murex *Boreotrophon truncatus***Priority 2 SGCN****IUCN Level 1 Threat Pollution****IUCN Level 2 Threat: Industrial and Military Effluents****Severity:** High Severity**Actionability:** Moderately Actionable

Notes: Oil spills are toxic to species with intertidal distributions. Local scale spills have an unpredictable likelihood and actionability is moderate and influenced by response time to spills.

IUCN Level 1 Threat Climate Change and Severe Weather**IUCN Level 2 Threat: Changes in Temperature Regimes****Severity:** High Severity**Actionability:** Actionable with Difficulty

Notes: Murex are cold-water species. Increased water temperatures may have interactive effects with ocean pH decreasing survivorship of larvae and growth rate shown for other molluscs. Likelihood is high (high certainty) and large scale. The ability to mitigate sea temperature change is low.

IUCN Level 2 Threat: Habitat Shifting or Alteration**Severity:** High Severity**Actionability:** Actionable with Difficulty

Notes: Ocean acidification may result in decreased survivorship of larvae, and growth and feeding shown in other molluscs. Likelihood is high and large scale. The ability to mitigate ocean acidification is low.

IUCN Level 1 Threat Invasive and Other Problematic Species, Genes and Diseases**IUCN Level 2 Threat: Invasive Non-native-Alien Species-Diseases****Severity:** Moderate Severity**Actionability:** Actionable with Difficulty

Notes: Invasive non-native and alien diseases could have effects largely unknown at this time. Likelihood is high and large scale (throughout the region), so actionability is low.

Species Level Conservation Actions:

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

Conservation Actions Associated with the Gastropods Guild:

Murex *Boreotrophon truncatus***Priority 2 SGCN**

Conservation Action	Category	Biological Priority	Type
Encourage the use of more targeted fishing gear in order to reduce bycatch and habitat disturbance	Public Outreach	high	on-going

Threat(s) Addressed By This Conservation Action

- Fishing and Harvesting of Aquatic Resources

Conservation Action	Category	Biological Priority	Type
Reduce the collection and possession of live specimens	Policy	critical	new

Threat(s) Addressed By This Conservation Action

- Fishing and Harvesting of Aquatic Resources

Conservation Action	Category	Biological Priority	Type
Develop molecular tools to identify where specimens are collected.	Research	high	new

Threat(s) Addressed By This Conservation Action

- Fishing and Harvesting of Aquatic Resources

Conservation Action	Category	Biological Priority	Type
Ground-truth mapped habitat and compare to historical maps to monitor change over time, may require updating mapping plans to map more frequently	Survey and Monitoring	high	on-going

Threat(s) Addressed By This Conservation Action

- Fishing and Harvesting of Aquatic Resources

Conservation Action	Category	Biological Priority	Type
Reduce the use of tributyltin compounds as a biocide and antifouling prophalactic	Policy	critical	new

Threat(s) Addressed By This Conservation Action

- Agricultural and Forestry Effluents

Broad Taxonomic Group Conservation Actions:

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

Habitat Based Conservation Actions:

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

Murex *Boreotrophon truncatus*

Priority 2 SGCN



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