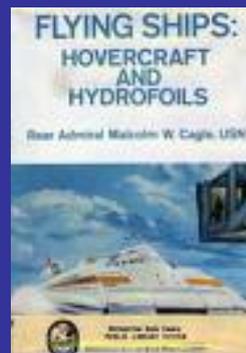


# ASSESSING THREATS

Judy Jacobs  
U.S. Fish and Wildlife Service



Infectious Diseases

# Threats Assessment

---

## WHAT IS IT?



"A threats assessment is a structured approach to assessing the relative importance of each threat to the species' status."

Section 5.1.6.7  
Interim E & T Species  
Recovery Planning Guidance  
October 2006

# WHY DO IT?

---



A formal threats assessment can be very helpful in bringing RT members and stakeholders to a common understanding and acceptance of the threats hampering recovery of the species and the priorities of those threats relative to recovery implementation.

# Why Bother?

---

- TAs can help structure thinking.
  - Threat reduction plays a central role in recovery.
  - TA results shape recovery strategies, criteria, actions.
  - Focus on the **source**, not the stress.
-

# CREDIBILITY FACTOR

*Threats have received insufficient attention in recovery plans.*

Lawler et al. 2002.  
Ecological Applications.

Clark et al. 2002.  
Conservation Biology.

*Lack of knowledge regarding the nature of threats ... is likely to be one of the factors contributing to the failure of [recovery] plans to address threats with recovery actions.*

---

# DEFINITIONS...

A **VULNERABILITY** is a weakness that can influence how various threats affect the species. Addressed through population-based criteria and management actions

A **THREAT** is any circumstance or event with the potential to cause harm to the species. Addressed through threat-reduction criteria and management interventions

Taken together, these indicate the risk of extinction.

---

---

# Other terms:

**STRESS/OR:** A process or event with direct negative impact on target species. [5 Factors]

**SOURCE OF STRESS:** The action or entity from which a stress is derived. [specific threat]

**EXPOSURE:** The extent to which a target resource and stressor overlap in space and/or time.

**RISK ASSESSMENT:** Technique for evaluating the probability and severity of an adverse outcome.

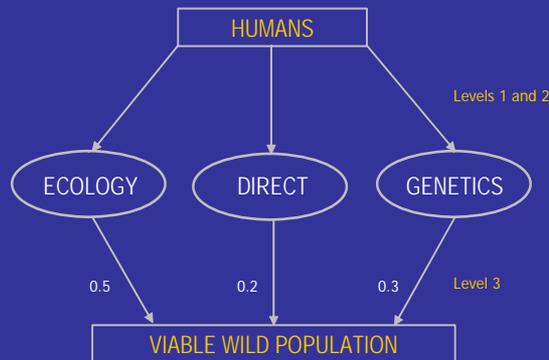
**RISK MANAGEMENT:** Technique for deciding on the best options for reducing risk.

---

# Threats Assessment Methodologies

- **Matrix approach** - (TNC) Tabular form, more qualitative
- **Diagrammatic approach** - (NRC) More quantitative; appropriate relative importance of threats is known

## DIAGRAMMATIC APPROACH:



Wiltzbach M.A. et al. 1998. Proactive responses to human impacts that balance development and Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 55: 288-302.

# MATRIX APPROACH:

Uses worksheet to rank stressors and sources of stress. May also identify threats which can be managed.

## RANKING CRITERIA

**SEVERITY:** intensity of effect where activity occurs

**GEOGRAPHIC SCOPE:** extent of threat across species' range

**IMMEDIACY:** how soon threat will affect species' status

**ABATEMENT:** how well management can contain threat

# MATRIX APPROACH

## DWARF WEDGE MUSSEL THREATS ASSESSMENT [example]

LISTING FACTOR/ THREAT	SOURCE	SEVERITY 0 = unknown 1 = low 2 = moderate 3 = high	GEOGRAPHIC SCOPE 0 = unknown 1 = localized 2 = SPR 3 = rangewide	IMMEDIACY 0 = unknown 1 = distant future 2 = mid-future 3 = near future	REVERSIBILITY 0= unknown 1 = irreversible 2 = partially reversible 3 = fully reversible
Habitat destruction/ modification	Dams	3	1	3	2
	Development	2	2	3	1
	Pollution	3	2	3	2
Overutilization	Illegal collecting	1	1	0	3
Disease/ Predation	----	--	--	--	--
Inadequate regs	Variable state laws	2	3	3	2
Other factors	Zebra mussels	3	2	3	0

# TA Adaptable to each species

---

## Potential Sources of Variability:

- **Species** – different threats for different life stages?
- **Scope** – different threats in different geographical areas?
- **Stakeholder Involvement**
- **Available information & resources**

---

**Matrix Headings can be adjusted to suit species' needs**

---

# TA commonalities:

- Consensus-driven
- Organized by listing factors
- Weighting systems used
- Threats assessed in terms of effects on population viability
- Individual and combined threats assessed
- Information gaps identified



---

# "All models are wrong but some are useful."

- Flexible process for assessing complex systems
  - Helps set priorities for remedial action
  - Helps guide adaptive management efforts
  - Can be revised based on improved data
  - Effective communication tool
  - May help deal with pervasive issues at regional or rangewide levels
-