

The Risk Assessment Tool (RAT) consists of a series of 58 questions broken into four Sections:

- Biological Characteristics/Exposure
- Environmental Effect
- Economic Effect
- Social Effect

### **Section 1**

#### Biological Characteristics/Exposure

This section consists of 22 questions and is divided into five subcategories.

1. Present Status (Is it here?)
2. Introduction (Can it get here?)
3. Survival (Can it survive?)
4. Establishment (Will it establish?)
5. Dispersal Ability (Will it spread?)

These questions focus on the current status of the alien species within the assessment area, the potential for the species to be introduced and the biological characteristics of the species that may allow it to become invasive within the assessment area.

The questions in this section are weighted the highest as they have the most influence on whether or not the alien species has the potential to be invasive.

### **Section 2**

#### Environmental Effects

This section consists of 13 questions divided into five subcategories:

1. Competition
2. Predation/Parasitism
3. Host/Vector
4. Hybridization
5. Abiotic or Ecosystem Processes

These questions focus on the potential environmental impact of the alien species.

The questions in this section are weighted equally with the other Effects Sections.

### **Section 3**

#### Economic Effects

This section consists of 14 questions and considers the potential impact on industry the alien species may have. These questions ask about the effect the species may have within the agriculture, forestry, recreation, tourism and other industries within Alberta.

The questions in this section are weighted equally with the other Effects Sections.

#### **Section 4**

##### **Social Impacts**

This section consists of 9 questions and considers the potential social impact of the alien species. These questions consider the impact on human health, traditional ways of life for aboriginal people and research and educational opportunities.

The questions in this section are weighted equally with the other Effects Sections.

All questions must be answered in order for the Results to be shown. Questions are answered by clicking on the radio buttons shown below each question. There is a Rationale and Guidance provided for each question to assist with answering the question.

The Rationale is the underlying scientific rationale or justification for asking the question to rank the potentially invasive species. It includes the ecological theory or scientific studies supporting the risk indicator.

The Rationale is found before each question and more information can be accessed by clicking on the “more” button.

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## Risk Assessment Calculator

The purpose of this Invasive Alien Species Risk Assessment Tool is to provide a systematic and quantitative decision-making system that can be used by governments, companies and individuals. The RAT can assist in the prioritization of alien species for management by their likelihood to establish, spread and adversely affect Alberta's economic base, social values, natural resource productivity and biodiversity. ([more info](#))

Exposure Environmental Economic Social

### Biological Characteristics / Exposure

#### Present Status (Is it here?)

The introduction of alien species into the environment poses a severe threat to biodiversity as well as, natural-resource based industries. New introductions of alien species are more likely to occur within habitats as the global trade market increases. Of all the introduced alien species, 10-20% will ... ([more](#))

Rationale

1.1 Is the species present in the assessment area? ⓘ

- Not present
- Likely Not present
- Likely Present
- Confirmed
- Unknown

1 of 22 >

The Guidance provides additional information to help answer each individual question. The Guidance asks additional questions to consider when assessing the species and provides definitions to assist the user in answering the questions.

The Guidance is found by rolling over the ⓘ found at the end of each question.

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Exposure

Environmental

Economic

Social

### Biological Characteristics / Exposure

#### Present Status (*Is it here?*)

The introduction of alien species into the environment poses a severe threat to... introductions of alien species are more likely to occur within habitats as the globe... 20% will ... ([more](#))

1.1

Is the species present in the assessment area? ⓘ

- Not present
- Likely Not present
- Likely Present
- Confirmed
- Unknown

Does the species currently exist within the area of assessment? It is important to remember that a species does not have to be physically viewable in the assessment area to exist within the environment. A species can persist in the environment as a seed, spore, or egg which can survive in a dormant state until suitable conditions arise. Purple Loosestrife (*Lythrum salicaria*), for example, can produce up to three million seeds per plant which can remain viable in the seed bank for up to twenty years (Graham, 2003). Is there evidence of a persistent propagule bank in the assessment area? Can the propagule remain viable in the soil or environment for more than a year? Can the propagule survive in adverse environmental conditions such as drought, lack of light to germinate or extreme weather?

Users can switch between the four categories to answer the questions by clicking on one of the four buttons named Exposure, Environmental, Economic or Social. The questions left unanswered when the user switches to a new category are automatically answered as "Unknown". Answering a question as "Unknown" automatically assigns the highest risk to that question. See example below.

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Exposure Environmental Economic Social

#### Biological Characteristics

**Present Status (Is it present?)**

The introduction of alien species into Alberta is expected to increase. The introduction of alien species into Alberta is expected to increase. 20% will ... ([more](#))

1.1 Is the species present in the assessment area? ⓘ

- Not present
- Likely Not present
- Likely Present
- Confirmed
- Unknown

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Windows Internet Explorer

Are you sure you want to switch to 'Environmental Effects'?

All unanswered questions in 'Biological Characteristics / Exposure' will be saved as 'Unknown'!

OK Cancel

Users are able to go back to any question and change their answers whenever they wish.

All questions must be answered in order for the results to display. Once all the questions have been answered, the user clicks on "Show Results" and a new page is displayed.

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- Exposure
- Environmental
- Economic
- Social

### Biological Characteristics / Exposure *Present Status (Is it here?)*

The introduction of alien species into the environment poses a severe threat to biodiversity as well as, natural-resource based industries. New introductions of alien species are more likely to occur within habitats as the global trade market increases. Of all the introduced alien species, 10-20% will ... ([more](#))

1.1 Is the species present in the assessment area? ⓘ

- Not present
- Likely Not present
- Likely Present
- Confirmed
- Unknown

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Show Results >>

For more information about the Risk Assessment Calculator or to provide feedback, please contact [SRD.InvasiveSpecies@gov.ab.ca](mailto:SRD.InvasiveSpecies@gov.ab.ca)

Results are shown as follows:

## Risk Assessment Calculator Results

The purpose of this Invasive Alien Species Risk Assessment Tool is to provide a systematic and quantitative decision-making system that can be used by governments, companies and individuals. The RAT can assist in the prioritization of alien species for management by their likelihood to establish, spread and adversely affect Alberta's economic base, social values, natural resource productivity and biodiversity. ([more info](#))

<< Start Over

[Download Spreadsheet \(CSV\)](#)

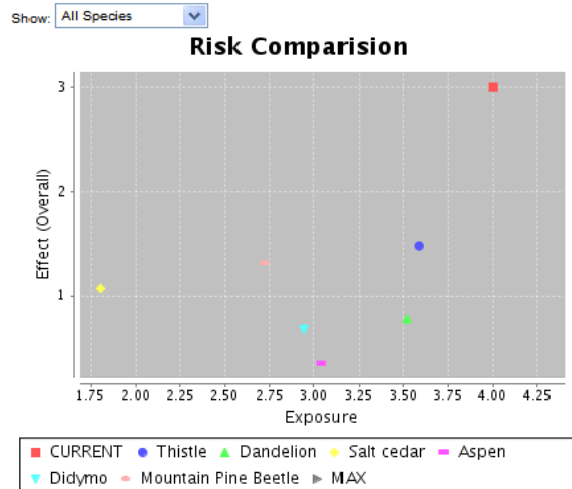
### Summary

[Exposure Score](#) 4.000

	Assessment Score	Max. Score	Proportion
<a href="#">Environmental Effect</a>	39	39	1.000
<a href="#">Economic Effect</a>	42	42	1.000
<a href="#">Social Effect</a>	27	27	1.000

Effect (Overall): 3.00

**Overall Risk (Exposure \* Effect) : 12.00**



The potential invasiveness of a species increases as Exposure and Effect increases. This graph does not take into account the amount of time it may take for a species to become invasive, only the potential for the species to be invasive within the assessment area.

**Risk is calculated as: Exposure x Effect**

### Exposure

Exposure is calculated by:

$[(\text{Present Status} + \text{Introduction}) \times \text{Survival}] + \text{Establishment} + \text{Dispersal}$

Present Status = sum of questions 1.1 - 1.3

Introduction = sum of questions 1.4 - 1.8

Survival = sum of questions 1.9 - 1.12

Establishment = sum of questions 1.13 - 1.19

Dispersal = sum of questions 1.20 - 1.22

The Exposure score is shown as a percentage of the maximum risk score.

### Effect

Effect is calculated by:

(Environmental Effect) + (Economic Effect) + (Social Effect)

Environmental Effect = sum of questions 2.1 – 2.13

Environmental Effect score is shown as a percentage of the maximum risk score.

Economic Effect = sum of questions 3.1 – 3.14

Economic Effect score is shown as a percentage of the maximum risk score

Social Effect = sum of questions 4.1 – 4.9

Social Effect score is shown as a percentage of the maximum risk score