

Name: _____ Date: _____ Period: _____

Resistance to Aliens

Wk # _____

Directions: Read, annotate, and answer the questions.

Many ecosystems around the world are invaded by non-native species that have been introduced deliberately or accidentally by humans. Scientists call these species aliens. The abundance of aliens depends upon multiple factors including climate and species richness of the ecosystem.

An experiment was conducted to examine the establishment of the alien plants *Ailanthus altissima*, *Carpobrotus spp.*, and *Oxalis pescaprae* across six Mediterranean islands. The six islands in the experiment vary slightly in climate but each contain dunes, shrubland, and old fields.

1. (RST.9-10.4.) Explain the meaning of these words using context clues and prefixes/suffixes.

deliberately: _____

aliens: _____

abundance: _____

establishment: _____

The data in Table 1. shows the occurrence of the alien species.

Island	<i>Ailanthus</i>			<i>Carpobrotus</i>			<i>Oxalis</i>		
	Dunes	Shrubland	Old Fields	Dunes	Shrubland	Old Fields	Dunes	Shrubland	Old Fields
Crete	0	2	2	3	3	2	1	4	4
Lesos	0	2	2	1	0	0	1	1	4
Mallorca	0	1	3	3	1	0	0	2	5
Menorca	0	1	2	4	1	1	1	2	5
Porquerolles	0	0	0	4	4	4	1	2	2
Sardinia	1	3	4	5	4	0	1	4	4

Table 1.

Occurrence was categorized according to a 0-5 scale below in Table 2. Randomly chosen dunes, shrubland, and old fields on each of the six island were sampled to determine these values.

Category	Qualitative Description	Quantitative Description
5	Widespread	> 75%
4	Abundant	50-75%
3	Frequent	25-50%
2	Occasional	5-25%
1	Rare	0-5%
0	Not Present	0

Table 2.

Adapted from:

Montserrat Vila. (2008). Widespread resistance of Mediterranean island ecosystems to the establishment of three alien species. *Diversity and Distributions*, 14, 839-851. doi: 10.1111/j.1472-4642.2008.00503.x

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- (IOD 401) Which island did not experience the establishment of *Ailanthus*?
 - Sardinia
 - Lesos
 - Mallorca
 - Porquerolles
- (IOD 502) On the island of Sardinia, which of the following experienced the highest occurrence of alien species?
 - Carpobrotus* in old fields
 - Ailanthus* in dunes
 - Carpobrotus* in dunes
 - Oxalis* in shrubland
- (IOD 502) Which alien species experienced the same results on two different island?
 - Oxalis* in Sardinia and Crete
 - Ailanthus* in Lesos and Menorca
 - Oxalis* in Lesos and Sardinia
 - Carpobrotus* in Crete and Mallorca
- (IOD 501) How many islands experienced at least one location with over 75% occurrence of a non-native species?
 - 2
 - 4
 - 3
 - 1
- (IOD 501) According to Figures 1 and 2, which island experienced an abundant amount of *Carpobrotus*?
 - Crete
 - Lesos
 - Mallorca
 - Porquerolles
- (EMI 501) Most scientists agree that successful alien plants are pre-adapted to the climate condition in the new ecosystem. According to Figures 1 and 2, which of the following best supports most scientists' beliefs?
 - Ailanthus* on Porquerolles
 - Oxalis* in old fields
 - Carpobrotus* on Crete
 - Ailanthus* in dunes

One of the major factors determining an ecosystem's invasibility is climate. Climate refers to the weather conditions, such as temperature, precipitation, humidity, and winds, in an area over a long period of time. Temperature and precipitation are the two most important factors that determine a region's climate. Below is temperature and precipitation data for the six Mediterranean islands. The black data representations are from the year of the experiment and the white data representations are from the following year.

- (RST.9-10.4.) Explain the meaning of these words using context clues and prefixes/suffixes.

invasibility: _____

precipitation: _____

- (EMI 401) Which of the following conclusions is supported by data in Figure 1?
 - The six Mediterranean Islands experience the same climate.
 - Most of the islands experienced a warmer year after the experiment than during the experiment.
 - The mean temperature fluctuates 5-10 degrees between islands.
 - Porquerolles and Lesos are the most similar in temperature of the six islands.
- (EMI 501) Which island experienced an increase in both temperature and precipitation?
 - Menorca
 - Sardinia
 - Mallorca
 - Porquerolles

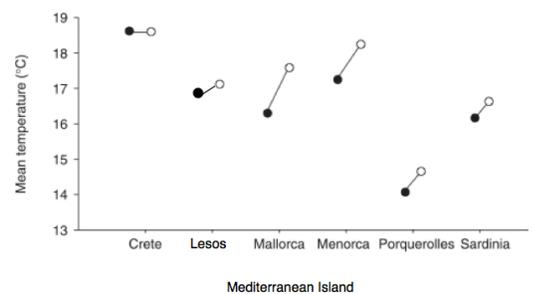


Figure 1

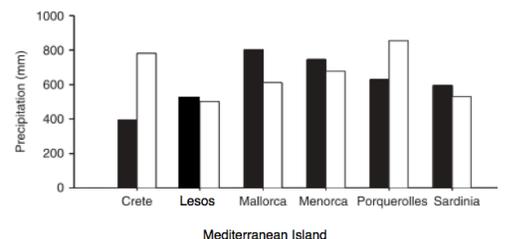


Figure 2