SI Biology - Full Discipline Demo

Ecological Succession

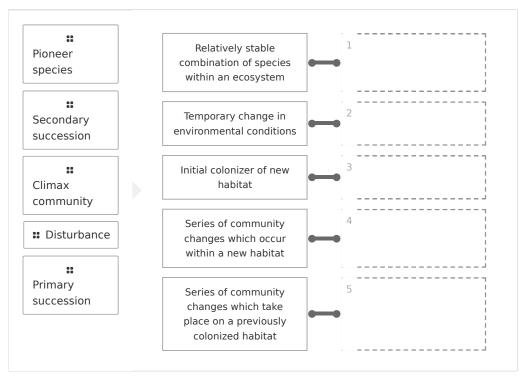
Final Report - Answer Guide

InstitutionScience Interactive UniversitySessionSI Biology - Full Discipline DemoCourseSI Biology - Full Discipline Demo

Instructor Sales SI Demo

Test Your Knowledge

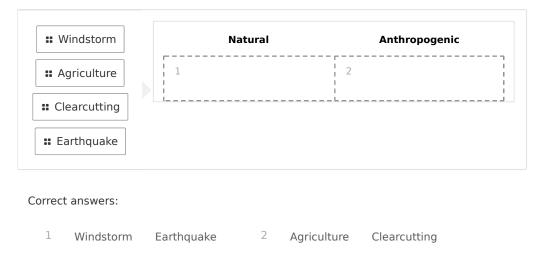
Match each term with the best description.



Correct answers:

- 1 Climax community 2 Disturbance 3 Pioneer species
- 4 Primary succession 5 Secondary succession

Categorize each disturbance as natural or anthropogenic.



Exploration

Climax communities are considered the final stage of ecologic	cal succession.
○ True	~
False	
Anthropogenic disturbances include	
agriculture	~
earthquakes	
windstorms	
lava flows	
Pioneer species are necessary for secondary succession to oc	cur.
True	
False	~

Exercise 1



What type of ecological succession was represented in each of the image series in this exercise? Reference your responses in Data Tables 1-2 and the specific photos in each of the series in your explanation.
Primary succession was represented in series 1 as new land was created in the form of sand dunes as shown in photo 1C and as referenced in Data Table 1. Secondary succession was represented in series 2 as disturbance in the form of a fire that destroyed an existing forest ecosystem as shown in photo 2D and as referenced in Data Table 2.
Are climax communities represented in either of the image series in this exercise? Reference the specific photos and Data Tables 1-2 in your explanation.
Yes, a climax community is a relatively stable combination of species considered to be the final stage of ecological succession. Series 1 photo D and series 2 photo A are examples of mature forests as referenced in Data Table 1 and 2.
Which of the two communities represented in this exercise had the potential to undergo succession faster? Reference the importance of soil in your explanation.
Series 2 had the potential to succeed faster because it had soil remaining after the disturbance, whereas series 1 began with only sand. Soil contains both seeds and roots of living plants and nutrients that support rapid establishment and growth of plants after a disturbance compared to primary succession which requires soil to be formed before a diversity of plants can colonize an area.

Data Table 1: Ecological Succession Series 1 (SAMPLE ANSWER BELOW)

(SAMPLE ANSW	EK BELOW)	
Image	Order	Explanation
Α	3	Small trees begin colonizing the site
В	2	Numerous grass and herb species present
С	1	Only pioneering grass present.
D	4	Climax forest present



Data Table 2: Ecological Succession Series 2

(SAMPLE ANSWER BELOW)

(WOULL D	
Image	Order	Explanation
Α	4	Climax boreal forest
В	2	Numerous species of non-woody plants have colonized the burn area
С	3	Small trees are thriving
D	1	Emergent vegetation following a forest fire

Data Table 3: Ecological Succession Initiators (SAMPLE ANSWER BELOW)

(SAMPLE ANSWER BELOW)	
Event Description	Primary or Secondary Succession
A volcanic eruption produces a new island in the Pacific Ocean.	Primary Succession
A typhoon levels a coastal forest.	Secondary Succession
A glacier retreats leaving a valley of exposed rock.	Primary Succession
A grassland is plowed to create a cornfield.	Secondary Succession
An introduced species destroys the trees in a community.	Secondary Succession

Exercise 2

Was there evidence of natural or anthropogenic disturb	ances in the natural area you visited?
Reference Photo 1 and the history recorded in Panel 1 in	
	0 / 10000 Ward Limit
	0 / 10000 Word Limit
What stage of ecological succession was present in the Reference Photo 1 and Data Table 4 in your answer.	area you visited and photographed?
	0 / 10000 Word Limit

Panel 1: Location and History of Natural Area (SAMPLE ANSWER BELOW) $\,$

Note to instructors: Student answers will vary with the location of the study area but should include the county and state of location, and a brief description of the history of the site (if available).



Photo 1: Natural Area (SAMPLE ANSWER BELOW)

Note to instructors: Student photos will vary but should include a natural area devoid of buildings. The three types of dominant vegetation in the area should be visible in the photo.

Data Table 4: Plants and Animal Types of Area



(SAMPLE ANSWER BELOW)

(0) 11 11 22 7 11 10 1		
Abundance	Plant type	Animal type
1	Student answers should match the natural area in Photo 1. Only types (not species) are required here.	
2		
3		

Competency Review

Disturb	pances may result from both natural events and human causes.	
O Tru	ue	✓
- Fal	lse	
Α	is an example of a climax community.	
O cle	earcut	
O lav	va flow	
○ rai	n forest	✓
o sar	nd dune	
Second success	dary succession usually proceeds more slowly than primary sion.	
	sion.	
succes	sion.	✓
Succes: Tru	sion.	~
Succes: Tru Fal	sion. ue	~
Succes: Tru Fal	sion.	~
Succes: Tru Fal	sion. ue	*
succes: Tru Fal	re examples of pioneer species.	*
success Tru Fal Ha Mo	re examples of pioneer species.	
success Tru Fal Ha Mo	re examples of pioneer species. ardwood trees and Barred owls assess and lichens	



The photo below represents the intermediate stages of ecological succession.



- True
- False
- ____ are initiators of primary succession.
- Clearcutting and agriculture
- Forest fires and earthquakes
- Lava flows and landslides
- Windstorms and invasive species



is a location where ecological subsequent in the second second in the	uccession can be observed in the
o natural area	•
city playground	
manicured lawn	
o parking lot	
The most numerous plant and animal so when assessing the progression of eco True	

Extension Questions

Natural events are associated with both primary and secondary succession, whereas human activities are associated with secondary succession. Provide an example of a human activity that could lead to primary ecological succession. Explain your answer. (SAMPLE ANSWER BELOW)

Any human activity that creates a habitat where no life has previously existed could lead to primary succession. Examples include open pit mining, artificial beach creation, or hillsides created by excavation tailings. The provided example should expose surfaces (habitats) that have never been colonized by plants or animals.

