Species Rescue Lab

Name _____

Date _____

Period _____

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Do Now A scientist feeds a baby California condor with a puppet shaped like an adult condor's head. 2 minutes, before you open the lab

A. Why use a puppet instead of a bare hand?

☐ So the chick eats faster ☐ So the chick does not get used to people ☐ Because condors bite

B. Name one way people could help a rare bird raise more babies.

_____

☐ I can name the tools people use to save wild species, and say what each one does.

☐ I can use a model to test rescue plans and tell a stable population from a changing one.

☐ I can rank criteria, use them to pick the best plan, and say what it trades away.

Part 1. Comebacks (Tab 1)

SEP 4 Analyzing Data · SEP 5 Mathematics · CCC Stability and Change

Pick all three species. Copy each one from **Your species log**. Read **What people did**.

1. Your species log.

Species	Lowest count	Year	Latest count	Year
Whooping crane (birds)				
California condor (birds)				
Great Lakes piping plover (pairs)				

2. How many times bigger is each species now? Latest ÷ lowest. Round to a whole number.

Crane: _____ times. Condor: _____ times. Plover: _____ times. The biggest comeback: _____

3. What did people do first for each bird? Tick one box in each row.

Species	What people did
California condor	☐ caught every bird to breed in zoos ☐ fenced the nests ☐ made its winter marsh a refuge
Great Lakes piping plover	☐ caught every bird to breed in zoos ☐ fenced the nests ☐ made its winter marsh a refuge
Whooping crane	☐ caught every bird to breed in zoos ☐ fenced the nests ☐ made its winter marsh a refuge

READ FIRST. In the lab, find the green **Learn It** box and read it. Then answer 4 to 6.

4. Name the tool. Use: **ESA · CITES · seed bank · egg pulling · captive breeding · refuge** . One is extra.

Scientists take one egg from a crane nest that has two, and hatch it.	
A treaty between 183 countries bans selling elephant ivory.	
Seeds of thousands of plants are frozen in a vault in the Arctic.	
A U.S. law lists the plover as endangered and makes it illegal to harm it.	
All 27 condors are caught. Their young are raised and released.	

5. Name one problem that captive breeding cannot fix on its own.

_____

6. Every comeback used more than one tool. Pick one bird. Name two tools people used to save it.

_____

Part 2. Test the tools (Tab 2)

SEP 2 Models · SEP 5 Mathematics · CCC Stability and Change

Press each plan, **A** to **D**. Press **Run 20 years**. Copy it from **Your plan log**.

7. Your plan log. The plover starts at 99 pairs in 2026. The recovery goal is 150 pairs.

Plan	Cost per year	Pairs in year 10	Pairs in year 20	Year it hits 150
A. Law only				
B. Fence nests				
C. Fence + beaches + eggs				
D. Fence + zoo flock				

8. Which plans make the plover shrink? Tick every one. ☐ A ☐ B ☐ C ☐ D

9. Plan D adds 40 zoo birds every year, but it stops at _____ pairs. Which line on the graph stops it?

_____

READ FIRST. In the lab, find the green **Learn It** box and read it. Then answer 10 to 12.

10. Real condors, 2024: 16 chicks hatched in the wild. 35 wild condors died. People released 56 zoo-raised condors.

Wild births minus wild deaths = _____. Is the wild flock **stable** on its own? Use births and deaths to explain.

11. Model check. What does each part of the model stand for? Then name one thing the model leaves out.

The nesting room line (110 or 250 pairs)	
"About 3 in 4 adults live to the next year"	
Fencing nests raises chicks per pair to 1.4	

The model leaves out: _____

12. Plan C costs $1.0 million a year. For 20 years that is $_____ million. It ends with _____ pairs, which is _____ more than 99. Cost per pair added: $_____ million ÷ _____ pairs = about $_____ per pair.

Part 3. Weigh the plans (Tab 3)

SEP 6 Designing Solutions · SEP 7 Argument · CCC Stability and Change

Press **Ranking 1**. Copy the totals. Then press **Ranking 2** and copy again. Leave the **Must-have** box empty for now.

13. Total scores.

Ranking	A	B	C	D
Ranking 1				
Ranking 2				

14. Winner with Ranking 1: _____ With Ranking 2: _____

The plans did not change. What changed?
☐ the costs ☐ the order of the criteria
☐ the model

READ FIRST. In the lab, find the green **Learn It** box and read it. Then answer 15 to 18.

15. Fill in **criteria** , **constraint** or **trade-off** .

"Spend no more than $1 million a year" is a _____. "Low cost" and "keeps birds wild" are two of our _____. Plan C helps the whole beach, but it uses all our money. That is a _____.

16. Keep Ranking 2. Tick the **Must-have** box. Which plan wins now? _____ Why are Plans A and B out?

17. The book asks: "Save one species, or the whole ecosystem?" Which of our four criteria is about the ecosystem? _____ Name one more criterion you would add, and why.

Wrap it up

SEP 7 Engaging in Argument from Evidence · CCC Stability and Change

18. You have $1 million a year to save the Great Lakes piping plover. Which plan do you fund? Make a claim. Use two numbers from the lab. Name your top criterion and one trade-off of your plan.

NYSSLS: HS-LS2-7 (evaluate a solution that reduces human impacts on biodiversity), HS-LS4-5, HS-ESS3-3 (DCI LS2.C, LS4.D, ETS1.B). Environmental Science, Chapter 7, Lesson 7.3: How Can We Sustain Wild Species and Ecosystem Services? (pp. 231-238). SEP = Science and Engineering Practice, CCC = Crosscutting Concept. Data: International Crane Foundation; U.S. Fish and Wildlife Service; Great Lakes Piping Plover Recovery Effort. Part 2 is a model with round numbers.