# 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)** | | | | |

**Example.** A bird went from 10 to 50. 50 ÷ 10 = 5 times bigger. These are not your numbers.

**2.** Latest ÷ lowest. Crane: _____ times. Condor: _____ times. Plover: _____ times.

The biggest comeback: ☐ crane ☐ condor ☐ plover

**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.

**WORD BANK.** ESA · CITES · seed bank · egg pulling · captive breeding · refuge (one is extra)

**4.** Name the tool.

| | |
|---|---|
| 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.** Captive breeding cannot fix this on its own:

☐ chicks that need food ☐ lead poisoning in the wild ☐ too few eggs in a zoo

**6.** My bird: ☐ crane ☐ condor ☐ plover Two tools people used (word bank): _____ and _____

## 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 stops at _____ pairs. The line that stops it: ☐ recovery goal ☐ budget ☐ nesting room

**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.

16 – 35 = _____. Without the zoo birds, the wild flock would ☐ grow ☐ stay the same ☐ shrink

Is it **stable** on its own? ☐ yes ☐ no Deaths are ☐ more than ☐ less than ☐ equal to births.

**11.** Model check. What does each part stand for? Tick one box in each row.

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

The model leaves out: ☐ the starting count of 99 pairs ☐ storms and high lake levels ☐ the cost of fences

**Example.** $10 million for 50 pairs: $10,000,000 ÷ 50 = $200,000 per pair. Not your numbers.

**12.** Plan C: $1.0 million × 20 years = $_____ million. Pairs added: _____ – 99 = _____. $_____,000,000 ÷ _____ 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.

**WORD BANK.** criteria · constraint · trade-off

**15.** "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. Plan _____ wins now. A and B are out because they ☐ cost too much ☐ make the plover shrink ☐ use zoo birds

**17.** The criterion about the whole ecosystem: ☐ Low cost ☐ Keeps birds wild ☐ Helps the whole beach

One more criterion I would add: _____

## 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. Finish the frame.

I would fund Plan _____. In the model, it reached _____ pairs in year 20 and costs $_____ million a year.

My top criterion is _____ because _____. One trade-off is _____.

NYSSLS: HS-LS2-7, HS-LS4-5, HS-ESS3-3. Environmental Science, Lesson 7.3 (pp. 231-238). Data: International Crane Foundation; U.S. Fish and Wildlife Service. Part 2 is a model with round numbers.