

Name: _____

Amphibian species facing extinction, new study warns

By Juliet Eilperin *The Washington Post*

Period: _____

WASHINGTON — Amphibians are experiencing a precipitous decline across the globe, according to the first comprehensive world survey of the creatures, which include frogs, toads and salamanders. Up to 122 species have disappeared since 1980 and another 1,900 are in danger of going extinct.

The rapid drop — the equivalent of tens of thousands of years worth of extinctions in just a century — is being caused by factors that include deforestation, pollution, habitat loss and climate change, the researchers said.

But they added that the phenomenon also tells a disturbing tale of broad environmental degradation that may ultimately threaten humans and other animals as well. Amphibians are often considered "canaries in the coal mine" because their permeable skin makes them especially sensitive to changing environmental conditions.

"It's entirely possible other groups of biodiversity may go down the drain," said Claude Gascon, a scientific adviser to the study who serves as vice president for regional programs at Conservation International, an environmental group.

The survey found that 32 percent of amphibian species face extinction, compared to 12 percent of bird species and 23 percent of mammal species. The three-year, \$1.5 million study, which involved 500 scientists from 60 countries, is being published today in the journal *Science*.

Scientists began noticing the disappearance of amphibians in the late 1980s and early 1990s, but before this study they'd never conducted a worldwide assessment of the amphibians, which include all frogs, toads, salamanders and legless caecilians, also called rubber eels.

"We've never documented anything like this for any other species. When species become rare and begin disappearing, we nearly always know why," said Simon Stuart, leader of the global assessment team. "This has taken the scientific world completely by surprise."

Amphibians are under assault for three major reasons, according to the report. Habitat decline, from deforestation to water pollution and wetlands destruction, threatens them because the animals live both on land and in water. Overharvesting of amphibians for food and medicine is a second threat. The third major reason is more mysterious, but it has resulted in catastrophic declines, often linked to an infectious fungal disease that now affects amphibians worldwide called **chytridiomycosis**, particularly in cooler habitats that are experiencing drought.

The **chytridiomycosis** fungus causes dehydration by attacking the keratin (a protein in skin, nails, hair) in the frog's skin and disrupting its sensitive waterbalancing functions. Infected frogs usually die within a few weeks, and whole populations can disappear in a couple of years. It seems this fungus started to spread around the world when an aquatic frog, the South African clawed frog (*Xenopus laevis*), began to be traded internationally in mid-1930s. In fact, surveys showed the amphibian population of Costa Rica's Monteverde Cloud Forest, for example, was stable until 1987. The next year it began to crash and by 1989, 40 percent of its amphibian species had gone extinct, including the striking golden toad. Stuart said it is widely believed chytridiomycosis played a pivotal role in the devastation, which took place in a dry period.

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Humans are also responsible for amphibians' decline in other regions of the world, including China, where many are sought as a delicacy. The Chinese giant salamander — at 6 feet the largest amphibian in the world — sells for at least \$300 and makes for several meals, and it has now disappeared from nearly all its range.

Gascon, at Conservation International, said "there are some actions we can take today to prevent the immediate extinction of many species as we work on a longer-term solution." These include creating parks and ecological reserves, working to reduce emissions that contribute to climate change, and breeding animals in captivity in order to sustain vulnerable species.

Please answer the following questions on a separate sheet of paper. Use complete, quality, and correct sentences that reflect the question in your answer.

1. Tell how many amphibian species have disappeared since 1980 and how many species are in danger of becoming extinct.
2. Describe four factors that are causing the rapid drop in population and increased extinction rate of amphibians.
3. Tell why amphibians are like "canaries in the coal mine" for our environment. *Amphibians are*
4. A survey done by many scientists found rapid declines in amphibians, birds and mammal species all over the world. Tell the rates of extinction for each of these three species.
5. When did scientists first start noticing the decline of amphibians AND why hadn't the scientists noticed the decline before?
6. Describe the three major reasons scientists think amphibians are under assault.
7. Explain what chytridiomycosis is **and how** it kills amphibians.
8. Tell how many percent of the amphibian species in Costa Rica's Monteverde Cloud Forest went extinct in the period from 1987 to 1989, possibly due to chytridiomycosis **AND** give one example of an amphibian that went extinct.
9. Explain why the Chinese giant salamander is now disappearing around the world.
10. Explain three actions that might to prevent the immediate extinction of many species as we work on a longer-term solution.

Extra Credit. Copy a photo and give the name /species of two threatened or endangered amphibians go to <http://www.arkive.org/species/GES/amphibians/>