NRC Testimony

August 18th, 2014

Spell

My name is Nancy Gregory, I have an MA in Secondary Education and am a retired international educator. I have been here for the last 2.5 years. The ten years previous to that I was married to an exploration geologist and we lived on 3 continents. While we were living on various mine sites I became quite concerned at how mining waste water contaminates birds and animals. I have seen arsenic poisoning from liquid waste up close and personal as I waded into a pond to rescue a fish eagle and a cormorant who both later died. My friend, a bio chemist, made me swear that I would never put myself at such risk from poisoning ever again. I did do it again, as I pulled a baboon carcass out of a stream that we thought was **not** contaminated. The bodies began to pile up.

The National Audubon Society just released the hideous figures on how many migrating birds could be contaminated from one waste pond, 1600 ducks in one night in a oil sands pond in Alberta.

Mitigation Contention 6

I do not want to find birds dead or unable to reproduce due to increased selenium. **Selenium**, is a known by-product of ISL mining, according to the US Fish and Wildlife Service report from an ISL mine in Wyoming in September 2000; and it **bio accumulates** in grasshoppers. We had, and may still have, Greater Sage Grouse in that area, and their babies feed on grasshoppers along with all the other upland game birds. It is also more then possible that a Whooping Crane family could fly over the area and stop in one of the ponds already there. We are on their migration path, and

they often mix with Sandhill Cranes who fly over us two times a year. On a recent site visit we witnessed several ducks and other shore birds at a pond off Elbow Canyon Road, directly in the middle of the ore bodies, very near the proposed plant site. **Contentions 14A & B** - No one knows what the birds, Black Footed Ferrets, and the about to be listed by ** US Fish & Wildlife Service, Northern Long Eared Bat might do! The bats, we know, are already resident at Jewel Cave National Park, quite close as the crow flys, we do not know where they might by chance go! We know that they love forests and also to drink from ponds and hunt insects while flying over the same. We definitely need a further study of the area, focusing on the search for Greater Sage Grouse, Black Footed Ferrets, Northern Long Eared Bats, and Whooping Cranes in migration. We need more details about how selenium, the ISL by-product from other uranium mines, effects all creatures. I would like at this time to enter the Northern Long Eared Bat's soon to be listed as an Endangered Species (Oct 2014) status into the formal record. Listing from US Fish and Wildlife attached.

I would like to further address an additional topic – **Contention 3** - that you are allowing us to speak about; the movement of underground water through the aquifers, a vitally important resource for humans and wildlife alike.

When I was living in the West African country of Mali, at a very remote gold mining site, we became interested in the reports of diamonds found in breccia pipes some kilometers from us. We organized a group of exploration geologists, along with the preeminent Malian geologists who had mapped this very area of breccia pipes. We took a very long and

dangerous trip to see the diamonds (kept in bic pen lids by the villagers), and the pipes from which they had come where our Land Rovers became severely stuck . I learned a lot about breccia pipes on the ground, and in theory. Low and behold, they showed up again, as a topic of interest in '**Geology of the Black Hills**' by Lufkin, Redden, Loomis et al ! Quoting - "The breccia pipes permitted the transfer of water from deeper aquifers to shallow aquifers when erosion produced topography similar to the present. This upward transfer of water occurs at Cascade Springs, a few miles S. of Hot Springs, where large springs emerge in the Opeche Formation. However, the chemistry of the water and included sediment indicate that the water is also moving through the Minnelusa Formation but comes from the deeper Pahasapa aquifer (Hayes 1999), so the leaking process is still taking place." (end quote) It has been documented that there are breccia pipes within the proposed mining site. These reach from the Minnelusa aquifer up into the Inyan Kara aquifer, even through otherwise impermeable rock layers.*

I want you to understand that we do not know what will happen with the injections of waste water into in situ wells in this process! The Rapid City council even voted to contest the mine. This is our drinking water! It is our life, the blood of our communities - both animal and human.

* Private research Lilias Jardin, PhD.

** US Fish and Wildlife Service announcement of proposed listing of Northern Long Eared Bat

Questions and Answers
12-Month Finding for Northern Long-eared Bat and Eastern Small-footed Bat and Proposed Listing of Northern Long-Eared Bat

1. What action is the U.S. Fish and Wildlife Service taking?
The U.S. Fish and Wildlife Service (Service) announced a 12-month finding on a petition to list the eastern small-footed bat (*Myotis leibii*) and the northern long-eared bat (*Myotis septentrionalis*) as endangered or threatened under the Endangered Species Act and to designate critical habitat. After careful review, the Service determined that listing the eastern small-footed bat is not warranted; however, listing the northern long-eared bat is warranted. Therefore, the Service is proposing to list the northern long-eared bat as an endangered species throughout its range. We also determined that critical habitat for the northern long-eared bat is not determinable at this time. The proposal to list the northern long-eared bat as endangered also opens a 60-day public comment to allow opportunity for agencies, groups and interested people to comment on the proposal and provide us with new information.

2. Why is the Service proposing to list the northern long-eared bat as endangered?
White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to the northern long-eared bat, especially throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. White-nose syndrome has spread rapidly throughout the East and is currently spreading through the Midwest. Although the disease has not yet spread throughout the northern long-eared bat's entire range (white-nose syndrome is currently found in at least 22 of 39 states where the northern long-eared bat occurs), it continues to spread. Experts expect that where it spreads, it will have the same impact as seen in the Northeast. The current rate of spread has been rapid, spreading from the first documented occurrence in New York in February 2006, to 22 states and five Canadian provinces by September 2013. Prior to the emergence of white-nose syndrome, the northern long-eared bat was found in 39 states (including the District of Columbia), with higher abundance in the East and becoming less common as you move west.

Other threats to the species include: wind energy development, habitat destruction or disturbance (e.g., vandalism to hibernacula, roost tree removal), climate change, and contaminants. Although no significant population declines have been observed due to these threats, they may now be important factors affecting this bat's ability to persist while experiencing dramatic declines caused by white-nose syndrome.

The Service and others are working to minimize bat mortality from wind turbines on several fronts. We fund and conduct research to determine why bats are susceptible to turbines, how to operate turbines to minimize mortality and where important bird and bat migration routes are located. The Service, State natural resource agencies, and wind energy industry are developing a Midwest Wind Energy Multi-Species Habitat Conservation Plan that will provide wind farms a mechanism to continue operating legally while minimizing and mitigating listed bat mortality. Information about our work to address bat mortality from wind turbines can be found at www.fws.gov/midwest/wind.

3. Why did the Service determine that listing the eastern small-footed bat is not warranted?

To date, white-nose syndrome does not appear to have caused a significant population decline in eastern small-footed bats. Several factors may influence why eastern small-footed bats are less susceptible to the disease compared to other bats of the genus *Myotis*. The first factor that may influence lower susceptibility of eastern small-footed bats to white-nose syndrome is that this bat species tends to enter caves or mines later (mid-November) and leave earlier (mid-March) compared to other *Myotis* bats. Time spent outside of caves and mines means less time for the fungus to grow because environmental conditions like temperature and humidity are not the best for fungal growth. Second, when eastern small-footed bats are present at caves and mines, they are most frequently observed at the entrances, where humidity is low and temperature fluctuations are high; also conditions not ideal for fungal growth. Last, unlike some other gregarious bats (e.g., little brown bats), eastern small-footed bats frequently roost solitarily or deep within cracks, possibly further reducing their exposure to the fungus. In conclusion, there are several factors that may help explain why eastern small-footed bats appear to be less susceptible to white-nose syndrome.

4. What are federal and state agencies doing to find the cause and a cure for white-nose syndrome?

An extensive network of state and federal agencies is working to investigate the cause, source and spread of bat deaths associated with white-nose syndrome, and to develop management strategies to minimize the impacts of white-nose syndrome. Visit http://whitenosesyndrome.org/ to learn more.

The overall white-nose syndrome investigation has three primary focus areas: research, monitoring/management and outreach. In 2009 and 2010, the Service led a team of federal and state agencies and tribes in preparing a national white-nose syndrome management plan to address the threat to hibernating bats. This National Plan outlines actions necessary for state, federal and tribal coordination; provides an overall strategy for investigating the cause of white-nose syndrome; and a strategy for finding ways to manage it. Find out more about the plan at http://whitenosesyndrome.org/national-plan/white-nose-syndrome-national-plan.

5. What previous actions have been taken toward listing the northern long-eared bat?

On January 21, 2010, the Service received a petition from the Center for Biological Diversity requesting that the northern long-eared bat be listed as threatened or endangered and that critical habitat be designated under the Act. On June 29, 2011, the Service published in the Federal Register (76 FR 38095) our finding that the petition to list the northern long-eared bat presented substantial information indicating that the requested action may be warranted, and the Service then began a status review of the species.

The Service's settlement agreement (multi-district litigation) with WildEarth Guardians and the Center for Biological Diversity stated that a 12-month finding for the northern long-eared bat is due to the Federal Register by September 30, 2013. In addition, if listing is determined to be warranted, the Service will publish a proposed listing rule concurrent with the 12-month finding.

6. What is the northern long-eared bat and where is it found?
The northern long-eared bat is a medium-sized bat, about 3 to 3.7 inches long but with a wingspan of 9 to 10 inches. As its name suggests, it is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*. It eats insects and emerges at dusk to fly through the understory of forested hillsides and ridges feeding on moths, flies, leafhoppers, caddisflies, and beetles, which it catches while in flight using echolocation. This bat also feeds by gleaning behavior, which means catching motionless insects from vegetation or the surface of water bodies.

The northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia. The species' range includes the following 39 states: Alabama, Arkansas, Connecticut, Delaware, the District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming.

Northern long-eared bats spend winter hibernating in caves and abandoned mines, collectively call hibernacula. During summer, they roost alone or in small colonies underneath bark or in cavities or crevices of both live trees and snags (dead trees).

7. How would listing help conserve the northern long-eared bat?
Listing under the Endangered Species Act helps conserve species in several ways. Listing focuses conservation planning and funding, raises awareness that can lead to additional opportunities and partners, and by regulation protects listed species from intentional and unintentional harm.

The Endangered Species Act requires the Service to prepare a recovery plan for each listed species. A recovery plan identifies and prioritizes actions needed to conserve and recover a species. Non-governmental agencies, universities, and other federal and state agencies often carry out conservation actions identified in recovery plans.

Federally listed threatened and endangered species are usually considered as priorities during land-use planning.

Listing protects species by prohibiting "take" under Section 9. The take prohibition includes significant habitat modification or degradation that results in the direct killing or injury to listed animal species. States may also have their own laws restricting activity that affect federally listed species.

In addition, Section 7 of the Act protects listed species by requiring that other Federal agencies "consult" with the Service to ensure that their actions are not likely to jeopardize the continued existence of a listed species or adversely modify Critical Habitat. Through this consultation, the Service works with the federal agency and advises on whether the actions would affect the species or critical habitat as well as ways to avoid those impacts. Listed species often become

priorities for grants and other funding because of the section 7(a)(1) requirement that all federal agencies use their authorities to carry out programs for the conservation of threatened and endangered species.

8. When will the final decision on listing be made?
A final decision must be made within 12 months of the date that the proposal to list was published.

9. What can I do to help the northern long-eared bat?
Support conservation efforts and disease management efforts: Through our actions, people can play an important role in conservation efforts by observing recommendations and regulations designed to protect bat caves and mines where bats roost and hibernate. Minimizing visits to and contact with roost and hibernation areas and avoiding movement of equipment and clothing among different areas, can help prevent the spread of white-nose syndrome. Public use of and support for the national white-nose syndrome response plan is essential for the plan to be effective. Visit www.whitenose.org for the decontamination protocols and the national plan.

Visit local parks, refuges, and sanctuaries: While you enjoy these areas, your entrance fees and donations provide essential funds to manage and conserve habitat for plants and animals that rely on these lands. Visiting parks and refuges also provide opportunities to learn more about wildlife in your area.

Avoid disturbing hibernating bats: For the protection of bats and their habitats, comply with all cave and mine closures and regulations. If you are in an area without a cave and mine closure policy, follow all approved decontamination protocols. Under no circumstances should clothing, footwear, or equipment used in a white-nose syndrome-affected state or region be used in a -state or region unaffected by the disease. Visit http://whitenosesyndrome.org for decontamination protocols and the national plan.

Install a Bat Box: Like most eastern bats, the northern long-eared bat moves to trees for the summer, often using dead and dying trees. When safe to do so, leave these standing, but if dead or dying trees are not available, bats may use bat boxes as replacement roost sites. Bat boxes are especially needed from April to August when females look for safe and quiet places to give birth and raise their pups.

Support Sustainability: Support efforts in your community, county and state to ensure that sustainability is a development goal. Sustainable living helps alleviate some of the pressures and threats on imperiled species, like the northern long-eared bat, and their habitat.

Spread the Word: Understanding the important ecological role that bats play is a key to conserving the northern long-eared and other bats. Helping people learn more about the northern long bat and other endangered species can lead to more effective recovery efforts.

Join and Volunteer: Join a conservation group; many have local chapters. Volunteer at a local nature center, zoo, or national wildlife refuge. Many state natural resource agencies benefit

greatly from citizen involvement in monitoring wildlife. Check your state agency websites and get involved in citizen science efforts in your area.

10. How do I comment on the proposed rule?
You may submit comments by one of the following methods:

(1) Electronically: In the Keyword box, enter Docket No. FWS–R5–ES–2011–0024, which is the docket number for the rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on "Send a Comment or Submission." If your comments will fit in the provided comment box, please use this feature of http://www.regulations.gov, as it is most compatible with our comment review procedures. If you attach your comments as a separate document, our preferred file format is Microsoft Word. If you attach multiple comments (such as form letters), our preferred format is a spreadsheet in Microsoft Excel; or

(2) By hard copy: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R5–ES–2011–0024; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We will accept and consider comments and information we receive or postmarked on or before December 2, 2013. We must receive comments submitted electronically using the Federal eRulemaking Portal by 11:59 p.m. Eastern Time on the closing date.

Please send your comments **only** by the methods described above. We will not accept verbal comments left on phone voicemail or comments sent to other postal or email addresses. The Service will post all information received on http://www.regulations.gov. This generally means that the Service will post any personal information you provide.

11. Is there specific information that the Service would like to receive?
Any final action we take on this proposed rule must be based on the best scientific and commercial data available and must be as accurate and as effective as possible. Therefore, we are asking for comments or information from other concerned Federal and State agencies, the scientific community, or any other interested party. In particular, we are asking for information on:

(1) the species' biology, range, and population trends;

(2) any information on the biological or ecological requirements of the species, and ongoing conservation measures for the species and its habitat;

(3) biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and regulations that may be addressing those threats;

(4) current or planned activities in the areas occupied by the species and possible impacts of these activities on the species;

(5) additional information regarding the threats to the species under the five listing factors; and,

(6) information to help inform a critical habitat designation.

12. Where can I learn more about the northern long-eared bat and the proposal to list it as endangered?

Information is online at www.fws.gov/midwest/endangered or you may contact the U.S. Fish and Wildlife Service's Green Bay Field Office at:

Pete Fasbender, Field Supervisor
U.S. Fish and Wildlife Service
2661 Scott Tower Drive
Green Bay, WI 54229
Telephone: (920) 866-1717
FAX: (920) 866-1710

If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

Black Hills
Clean Water Alliance

SUMMARY: GEOLOGY AND HYDROLOGY IN URANIUM AREAS IN THE SOUTHERN BLACK HILLS

- In situ leach uranium mining is done directly in a water-bearing aquifer.. That's the only way it will work.

- In the Dewey-Burdock area, Powertech/Azarga Uranium wants to mine in the Inyan Kara aquifer, which is made up of the Lakota and Fall River formations.

- The Fall River formation is the largest producing aquifer in Fall River County, and the Lakota is the second largest.

- In order for in situ leach uranium mining to happen without contaminating multiple aquifers, the rock layers above and below the uranium mining aquifer must be continuous and without fractures.

- Geological research indicates that the rock layers in the proposed mining area are sporadic, vary in depth, and vary in their relationships to each other.

- The rock layer above the Inyan Kara aquifer contains faults and sandstone dikes that could allow mining fluids to move upward.

- There are approximately 4,000 old drill holes in the proposed Dewey-Burdock mine site. Most of these were drilled before there were regulations requiring that drill holes be lined or closed properly.

- The condition of most of these drill holes is unknown, but there is one place on the Dewey-Burdock site where an old drill hole leaks to the surface. A 1979 study also indicated that water leaks between the Fall River and Lakota formations, which the study said was probably due to the old drill holes and fractures in the rock.

- Faults run on both the north and south ends of the proposed mining area, and there are also "randomly oriented" faults in the area of the proposed mine.

Please email Jen with this Reference

- Chimneys in the rock, called breccia pipes, which are as much as 1300 feet high and several hundred feet across, are present in the proposed mining area. These reach from the Minnelusa aquifer up into the Inyan Kara aquifer, even through otherwise impermeable rock layers.

- There have been at least 11 earthquakes in Fall River and Custer Counties since 1872, measuring up to 4.0 on the Richter Scale.

- Powertech/Azarga indicates that there are at least 30 flowing wells within 2 kilometers of its permit boundary. Among other things, these discharges recharge riverbank aquifers, which mixes subsurface and surface water.

bellejen hotmail.com

- Research indicates that the water from the Inyan Kara aquifer in the proposed mining area moves west into Wyoming and south then east around the edge of the southern Black Hills.

- The Inyan Kara is one of the most porous of the major aquifers in the area, meaning that its water can move quickly. One test indicated that water in the Inyan Kara aquifer in the proposed mining area moved 4 miles in approximately 15 years, while another test indicated that it moved 15 feet per day.

- Even under the best conditions, spills and leaks – both above-ground and underground – are typical of in situ leach uranium mining.

This information is taken from geological studies, most of which are available at the South Dakota School of Mines and Technology library. Sources for specific information available upon request.

Summarized by Lilias Jarding, Ph.D.
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