



**UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES PROGRAM**

TELEPHONIC INTERVIEW TIME (09:56)

DECURRENT FALSE ASTER (HOST – SARAH LEON WITH MARIAN SMITH, PH.D.)

This transcript was produced from audio provided by FWS Endangered Species Program

P R O C E E D I N G S

(Music plays.)

MS. LEON: This is Sarah Leon for the U.S. Fish and Wildlife Service (Service), and I'm on the phone today with Dr. Marian Smith, a distinguished professor of research in the Biological Sciences Department at Southern Illinois University in Edwardsville. Dr. Smith is recognized as the leading authority on the decurrent false aster—its life history, management, and recovery. This year, she was recognized by the Service as a Recovery Champion for her work with the species.

Dr. Smith, what can you tell our listeners about this rare plant?

DR. SMITH: Well, other than my children and grandchildren, it's my very favorite topic. I am an expert on it because no one else really wanted to study it, I suppose. It's not common; it's hard to find; and, because of the dynamic habitat in which it lives, it's very difficult to follow and do population biology on.

When I first began working on it in 1991 – I was doing a small project for the Army Corps of Engineers out at the St. Louis office – very little about its life history was actually understood, although it had been listed in 1988. And that's what I've spent my time trying to understand.

The decurrent false aster is, as you said, a beautiful plant. Its official name, scientifically, is *Boltonia decurrens*. I probably throughout this talk will refer to it only as *Boltonia*, even though there are four other species in the genus, simply because, for me, the only one that matters is this one. *B. decurrens* is the only one that's listed under the Endangered Species Act, and it's the one that I've spent so much time studying.

It has flower heads that look very much like small daisies. They are about the size of a nickel and contain a bright cluster of yellow flowers in the center, and they are surrounded by pinkish-white ray flowers—what many people probably think of as petals.

It is a member of the daisy family. It's the largest family of flowering plants, with species that are distributed worldwide. In spite of that fact, *Boltonia* is rare. Its distribution is limited to scattered populations along a very narrow band of floodplain along the lower Illinois River valley, and its confluence with the Mississippi and Missouri Rivers just north of St. Louis. In all of the world, the only place that it's found is in a small portion of Illinois and an even smaller area of Missouri.

Under ideal conditions, the seeds will germinate in late winter and early spring as flood waters recede. Along the Illinois River, March to late April was typical for the historical flood regime. Seedlings of *Boltonia* become established and grow through April and June after flood waters recede. Then, by July the plants begin to bolt, and by "bolt," I mean grow tall. They flower in August and September. Seeds are produced and become mature in October and November, and then flood waters will once again cover the floodplain. So, that's its entire life cycle. Now, if this cycle proceeds without any serious interruption, that is if the flood cycle is not interrupted, *Boltonia* individuals may be 6 to 8 feet tall and produce thousands of seeds for next year's cycle.

In the early 1900s, a botanist surveying the river for the Corps of Engineers said that "the species provided a spectacular display along much of the Illinois River." Now that is no longer true; it's very seldom that you can see that these days.

MS. LEON: Now what's the story behind this species' decline?

DR. SMITH: In addition to being limited to a small geographic area, which makes it particularly vulnerable to disturbance or population destruction, *Boltonia* is what's call a fugitive species. Fugitive plants are always on the move because they are poor competitors. They become dominant only during the first year or couple of years when a new niche opens up. That is, when some disturbance creates an area that they can come into where there are no competing species. They decline, then, when other plants move into the area in the years following that population's establishment.

Fugitive species are absolutely dependent on frequent, regular disturbance to provide new habitats as old ones become unsuitable. You can see what kind of a problem this causes for species. Any destruction of available habitat is particularly bad for it because if it is wiped in one area, it must establish in another one. The only way *Boltonia* seeds are moved from place to place is on the river water. If the river water can't reach an area that is suitable for its establishment, then *Boltonia* is in serious trouble; and, in fact, it is in serious trouble.

The disturbance upon which *Boltonia* depends is annual flooding of the Illinois River. The entire hydrology of the Illinois River floodplain has been altered in the past 100 years. We still have flooding—all you have to do is watch the news; we've got terrible flooding right now. But for *Boltonia*, flooding in late June or early July is disastrous. That's the time when *Boltonia* must be in an area that's suitable for its germination and growth. It can't this year because those areas are flooded.

MS. LEON: So, Dr. Smith, why the personal interest in this species?

DR. SMITH: Well, part of it was opportunism on my part. When I first came to SIUE, I was sitting around in my office thinking “I have really got to come up with projects for these students.” It’s very difficult for a undergraduate student or even a Master’s students, in that short period of time that they are able to do research with somebody, to develop a large body of data. So, I thought “what I need is a project that I can break down into a bunch of small parts and then we can do individual projects that can be published on discrete subjects on a species as we go along; but at the end of which we will have a database that will be meaningful.” As I was sitting there trying to figure out what exactly I would do, the phone rang. It was Tom Keevan with the Corps of Engineers, and he said that he had heard that I was a new botanist SIU Edwardsville and he wondered if I would be interested in doing a small project for the Corps of Engineers for an endangered species—*Boltonia decurrens*. I said “just tell me where to go. I’ll be there.” So, we got involved in that way.

Then it seemed to become almost overwhelming, because there is something compelling, you have to admit, about studying a species that may be extinct tomorrow. The work has a challenge to it, or an immediacy to it that’s lacking when you are working with more commonly found species. And it’s a particular challenge to study one that’s a fugitive species, simply because they are very difficult to track. Many scientists simply don’t study fugitive species because they are so elusive. But, for me and my students, I think it became the thrill of the thrill of the chase and the critical aspect of the work gave the students a feeling of doing something worthwhile. So, I think all of those reasons made it personally compelling for me and for my students as well.

MS. LEON: I understand that throughout the years you worked with this species, you were able to develop a number of important partnerships related to the plant for both research and recovery. Can you tell us about some of these?

DR. SMITH: First of all, partnerships and collaboration with colleagues and students was absolutely essential to my research program. There is no way I could have established any kind of a management strategy to preserve the species without the help of a number of public and private agencies. I have to say, however, that I would have accomplished nothing without my students. I could never have collected the reams of data we managed to accrue without them—I am only one person, and the plant grown along a 200 mile stretch of the river and it’s difficult to find. So, we went out in mass for 10 years. I rented a van from the university and we went out all summer long searching for the plant, marking plants, and setting up study areas. I could never have developed any kind of accurate picture of *Boltonia*’s decline and the reason for it without all of those students.

Beyond the students, during this 20 year period I came to know and to value a host of site management personnel working for the Illinois Department of Natural Resources, the Fish and Wildlife Service, the Missouri Department of Conservation, and The Nature Conservancy. It seems like everybody on the Illinois River valley got to know me and my students, and most offered us unlimited assistance in finding, studying, and protecting *Boltonia*. We just had fantastic cooperation.

MS. LEON: Well, thank you, Dr. Smith, for taking the time to tell us more about this rare plant. It was a pleasure having you on today.

DR. SMITH: Well, thank you very much. I did enjoy the opportunity to share.

MS. LEON: For the U.S. Fish and Wildlife Service, this is Sarah Leon.