

A photograph of a pond at ORNL. In the background, a large, modern brick building with many windows is visible. The pond is surrounded by greenery, including tall grasses and red flowers in the foreground. The sky is blue with some clouds.

# ORNL'S Pond: Past, Present, and Future

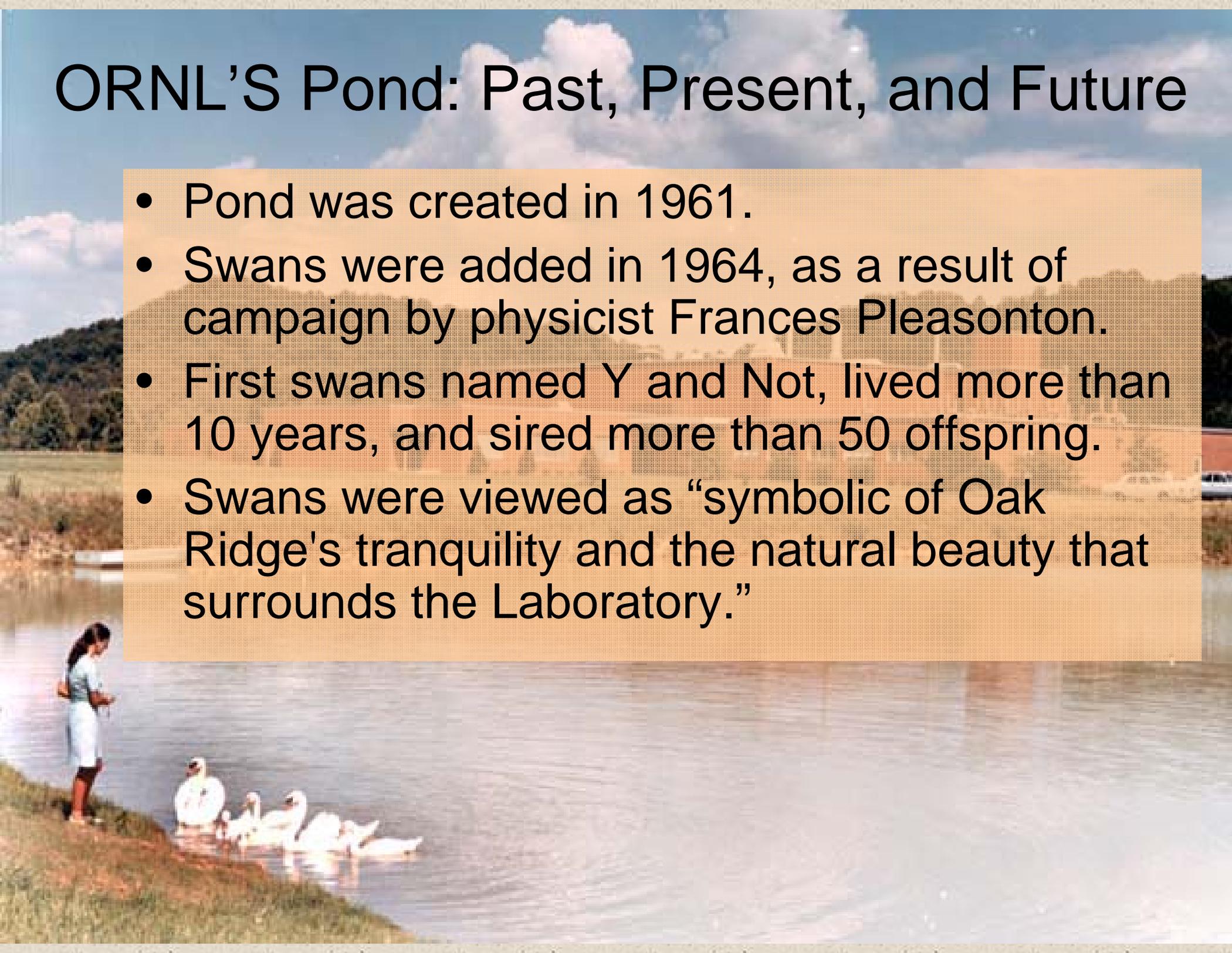
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Summer 2008

All pictures: ORNL staff photos

# ORNL'S Pond: Past, Present, and Future

- Pond was created in 1961.
- Swans were added in 1964, as a result of campaign by physicist Frances Pleasonton.
- First swans named Y and Not, lived more than 10 years, and sired more than 50 offspring.
- Swans were viewed as “symbolic of Oak Ridge's tranquility and the natural beauty that surrounds the Laboratory.”



# Transition of the Pond

- Although a fixture on campus, ORNL Swan Pond was not integrated into the landscape.
- As it was managed, pond invited use by large numbers of Canada geese.
- Fish fauna of pond was dominated by non-native species.



# Transition of the Pond

Initially it  
looked like a  
farm pond.



August 1965

# Pond was managed for swans.



Exotic mute swans controlled how pond was managed.



# Pond was managed for swans.



Access to the pond was controlled, and vegetation was limited to trees.



# Pond was managed for swans.

Chain link fence was used to keep swans on pond. They were fed grains, excess vegetables, etc., with supply usually exceeding demand.



Excess food attracted other birds, including large numbers of Canada geese and domesticated ducks.

# Pond was managed for swans.



Excess food and bird excrement kept water enriched and supported large numbers of non-native fish species (e.g., goldfish, fathead minnows) and invasive aquatic plants.

# Pond was managed for swans.



Grass carp were added to pond in 1970s to control submerged vegetation, but they left the water turbid most of the time.

# Transition of the Pond

- ORNL swan pond was targeted for “make-over” as part of the East Campus revitalization in 2004.
- Primary goal was to blend it into the surrounding area, making it a focus for pedestrians and cafeteria users.
- Secondary goals were to make it a more natural system reflective of area fauna and flora and help deal with nuisance geese.

# Transition began with removing swans

- Because waterfowl are federally managed, permits and approvals were needed.
- A suitable relocation site was needed.
- Some local “champions” had to be consulted and convinced.



Swans were moved to a local pond in October 2004.



# Transition included physical changes to pond and area.

- During construction of visitor center and cafeteria:
  - Chain link fence removed: Dec 2004;
  - Water feature and berm added: June 2005;
  - Feeding pier, dead trees, and nesting island removed: July 2005; and
  - New sidewalk and boardwalk over pond added: July – Sept 2005.



# More physical changes



Later, benches, river rock, and turtle platforms were added.



# Transition continued with changes in fauna and flora.

- Grass carp were removed to facilitate the establishment of emergent and floating vegetation in January and December 2005.
- Many large goldfish were also removed. Some goldfish remain.

# Removal of carp: Phase I



# Removal of carp: Phase II



# Removal of carp: Phase III



# Removal of carp: Phase IV



# Removal of carp: Mostly



# Transition continued with changes in fauna and flora.

- Sunfish added February 2006.
- Largemouth bass added February 2007.
- Native turtles, spotted gar, and more bass added April 2007.



Redear sunfish



Largemouth bass



Bluegill



Eastern painted turtle



Spotted gar



Largemouth bass

# Transition continued with changes in fauna and flora.

- A management and landscape plan for the pond was developed to guide transition.
- Wetland plants were added to make the pond appear “more natural” and to provide improved habitat.
- Shoreline plants were added to provide visual appeal.

# Shoreline floral changes

- Invasive shrubs and trees sprayed and removed: March 2005 and April 2008
- Non-native grasses sprayed: June 2005, April and June 2006, and April 2008
- Trees and shrubs planted on east and north shores: Sept. 2005
- Flowers planted on south shore: June 2005, June 2006, May 2007, June-July 2008

# East Shore Plantings



Oak leaf hydrangea

Beautyberry

# South Shore Plantings



Sideoats  
grama



Bee balm



Purple  
coneflower



Grayheaded coneflower

# North Shore Plantings



Red maple



Blazing star



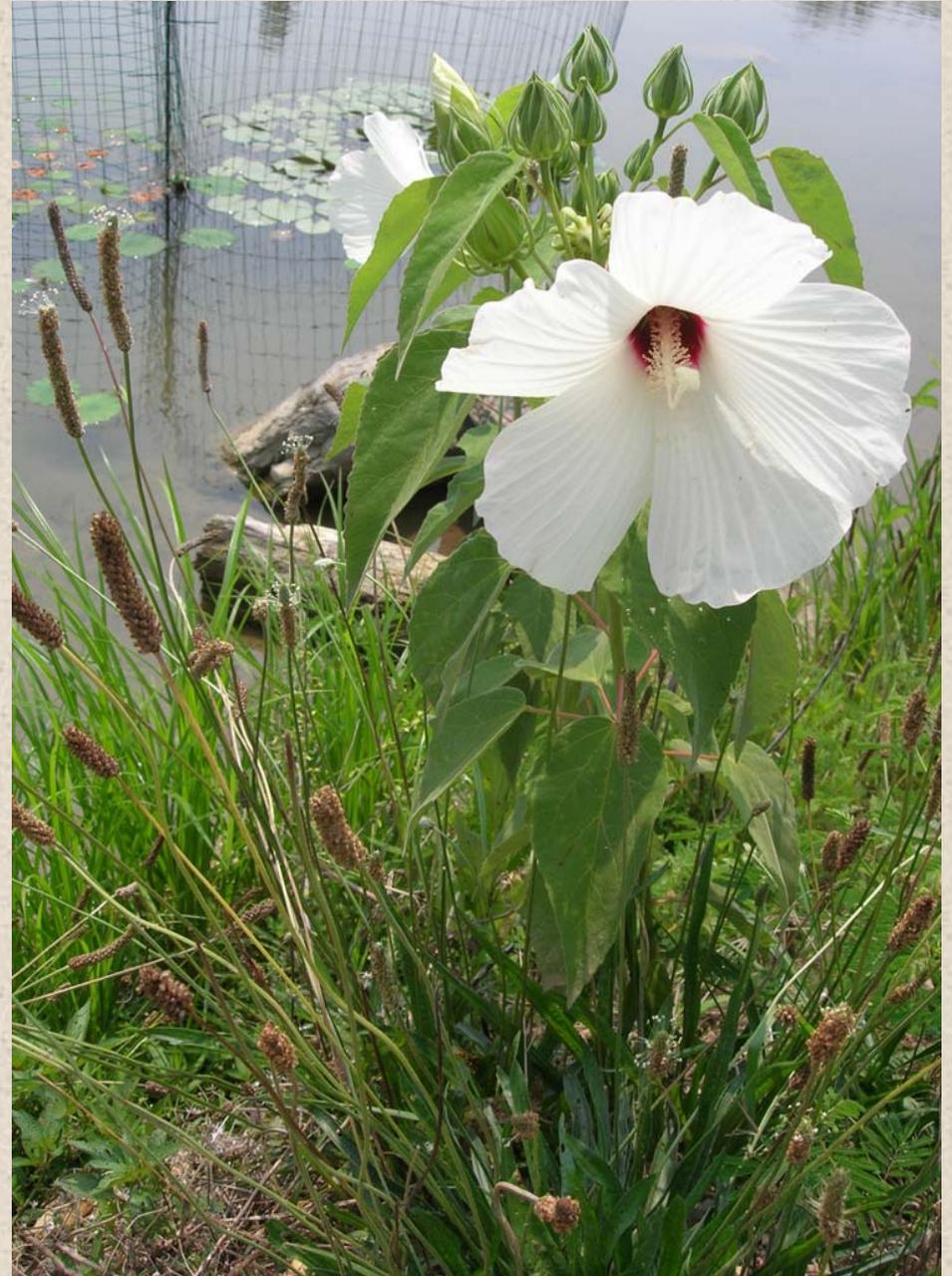
# West Shore Plantings



Buttonbush



Sycamore and  
black willow



Swamp mallow

# Emergent and floating plants were added.

- Emergent and floating plants were primarily located inside wire cages to reduce herbivore pressure.
- Supplemental plantings of emergent plants were also made outside of cages.
- Plants were obtained from nurseries, as well as transplanted from Oak Ridge Reservation wetlands.

# Planting July 2007



# Emergent plants



Spike rushes

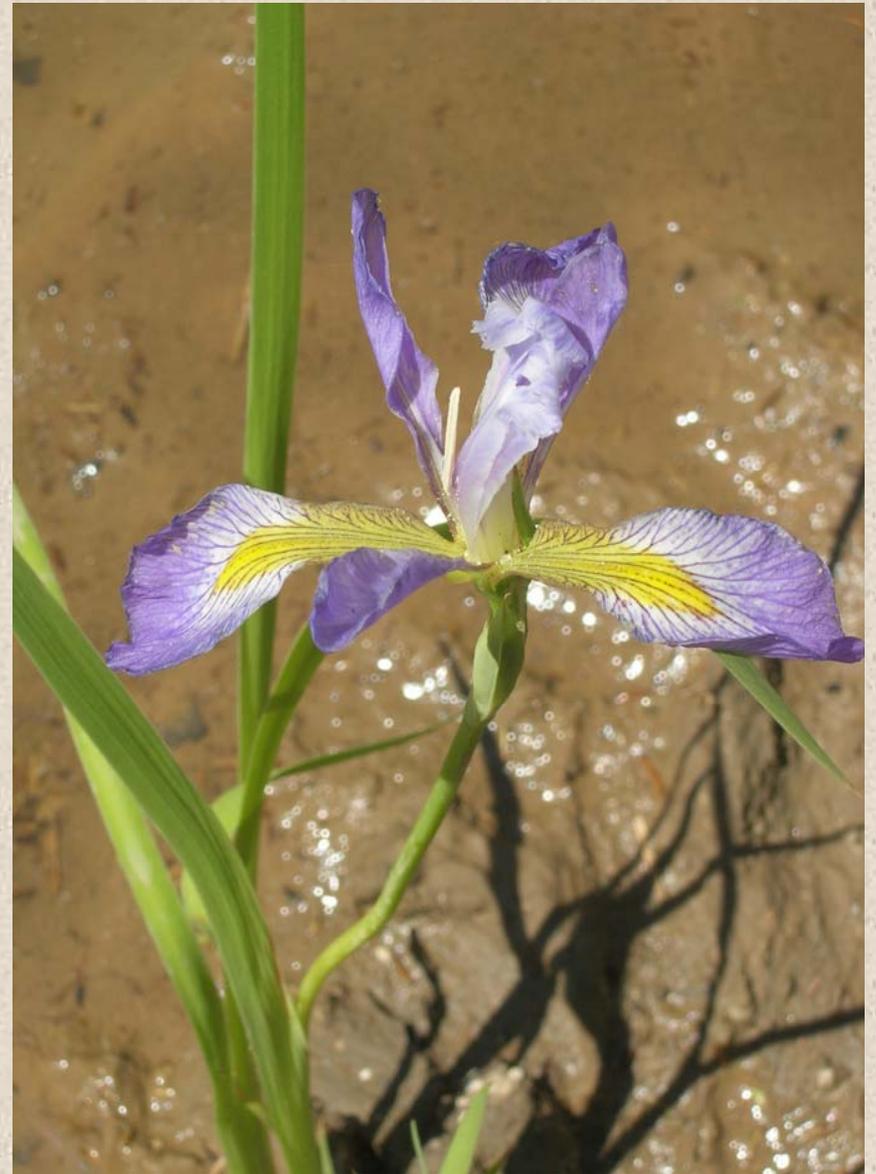


Cardinal flower

# Emergent plants



Sweet flag



Blue flag iris

# Emergent plants



Arrowhead



Pickerel weed

# Emergent plants



Sedges and rushes

# Floating plants



American lotus

Water lily

# Floating plants



Native water lily



Non-native water lily

# Transition progress



Appearance: September 2004

# Transition progress



During construction: September 2005

# Transition progress



Plantings without cages: October 2006

# Transition progress



Initial cage plantings: July 2007

# Transition progress



Plants beginning to expand: August 2007

# Transition progress

End of first season  
of growth:  
September 2007



# Transition progress



Status: May 2008

# Transition progress

Status:  
August 2008



# Algae bloom spring 2007



Emergent and aquatic vegetation  
should limit future blooms

# Wildlife residents



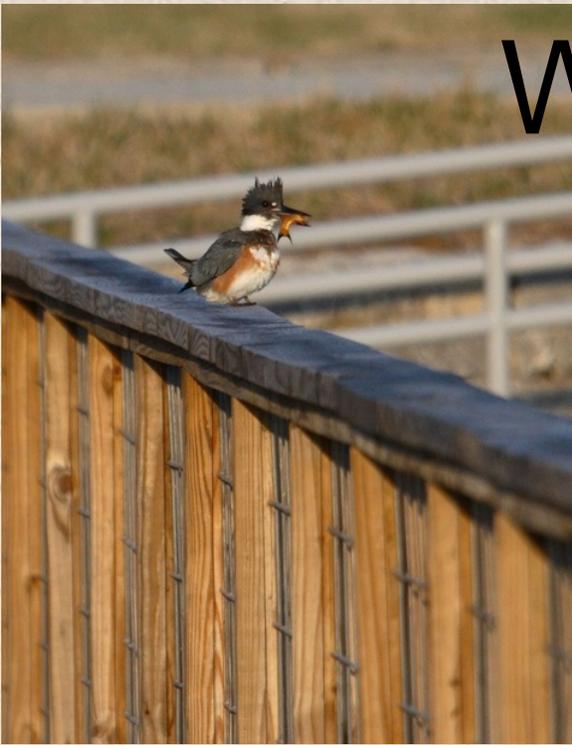
Northern  
water  
snake



Eastern  
painted  
turtle



# Wildlife visitors



Belted  
kingfisher



Great  
egret



Great  
blue  
heron



Killdeer

# Transition will continue.



In summer 2008 more aquatic and shoreline planting was done, and a purple martin house was added.

Future plans call for additional shoreline plantings and bird houses, as well as efforts to control non-native fish.

