PAST PROJECTS:
RESEARCH, MONITORING AND RESTORATION

- FOREST MONITORING PROGRAM (2002-2005)

  In 2002, a long-term monitoring program was initiated to assess the health of forest ecosystems on the Bruce Peninsula. Sixteen permanent monitoring plots have been established on both private and protected lands throughout the municipality. These monitoring plots are stations designed to examine various aspects of forest ecosystems, including structure and composition of mature trees, tree health, seedling and sapling regeneration, and decomposition. Monitoring these plots over an extended period of time allows the community to better understand forest ecosystems, detect local and regional environmental changes, and furthermore, make informed land management decisions.

  Due to their sensitivity to environmental disruptions, protocols to monitor salamander abundance and diversity were added to the forest monitoring program. These protocols have been implemented at eight of the monitoring plots since 2003 to detect subtle changes in the health of forest ecosystems. In 2005, lichen monitoring protocols were also implemented as an indicator of atmospheric changes, including air pollution and climate change.

- BENTHIC MONITORING PROGRAM (2003-2005)

  Since 2003, a benthic monitoring program has been implemented in three local coldwater streams to monitor the health of these aquatic ecosystems. Benthic monitoring involves collecting bottom samples from the streams to identify and count the macroinvertebrates, or aquatic insects, present in the water. Since some of these species are sensitive to disruptions in their environment they are good indicators of the health of the streams. Three streams have been monitored, including Willow Creek, Crane River and Spring Creek. The data collected from this program contributes to a monitoring program that assesses contribute to a monitoring program to determine long-term changes in these ecosystems.

- YOUTH EMPLOYMENT OPPORTUNITY (2002-2005)

  For four years, the Bruce Peninsula Biosphere Association has provided local youth with an opportunity to gain hands-on employment experiences under the mentorship of resource professionals. The Association has secured funding each year to employ a recent college/university graduate as well as a secondary student assistant who are responsible for implementing the forest and benthic monitoring programs. This employment opportunity offers youth experiences in ecological monitoring, working with community members and organizations, communication skills, report writing, and supervisory skills.

- AGRICULTURAL STREAM REHABILITATION (2004-2005)

  In 2003, the Bruce Peninsula Biosphere Association collaborated with a local farmer and several other community partners to rehabilitate an agricultural stream. Located on the upper Bruce Peninsula, the Brinkman Farm is a second-generation farm operation that is representative of many of the small rural farms throughout Bruce County. Situated on the farm is a unique system of ponds and streams that is fed by a natural spring and drained through a sinkhole, potentially leading underground to the Lake Huron shoreline. As a result, the activities occurring on the property can have significant impacts on the health of the overall watershed in the area. Realizing its significance to the health of the local watershed, the Brinkman family, along with several other community partners and sponsors, commenced a project in 2004 to rehabilitate this network of ponds and streams.

  The following illustrates the three phases of the project:

  - *Phase 1:* Installed fences along the bank of the stream to exclude cattle from the area and relocated the water supply using a solar-powered pump that drew water from the stream to a water tank in the adjacent pasture area.
  - *Phase 2*: Planted native vegetation to stabilize the banks and shade the stream to improve water quality
  - *Phase 3:* Biology students from Bruce Peninsula District School, with the mentorship of resource professionals, collected water samples to monitor changes in water quality to understand the effectiveness of the restoration efforts