

☐ Monarch Butterfly Sanctuary

Full Scale Implementation OR Pilot Scale/Study

1. Description of the project: What is the issue and how did you fix it?

Benton's butterfly sanctuary is once again producing fat and happy babies. Monarch butterflies are an endangered species.

2. Environmental Benefits: Conservation of raw materials or energy, reduction or elimination of emissions, wastes, toxics, water discharges, etc.

See article

3. Other Benefits: Productivity, health and safety, employee morale, etc.

4. Cost Savings: Capital cost, operating cost, ROI or other pertinent cost information.

5. Applicability to other foundries and additional Comments

Green Foundry Project

2105-17

6. Applicable Environmental Categories and Foundry Processes. Select all that apply.

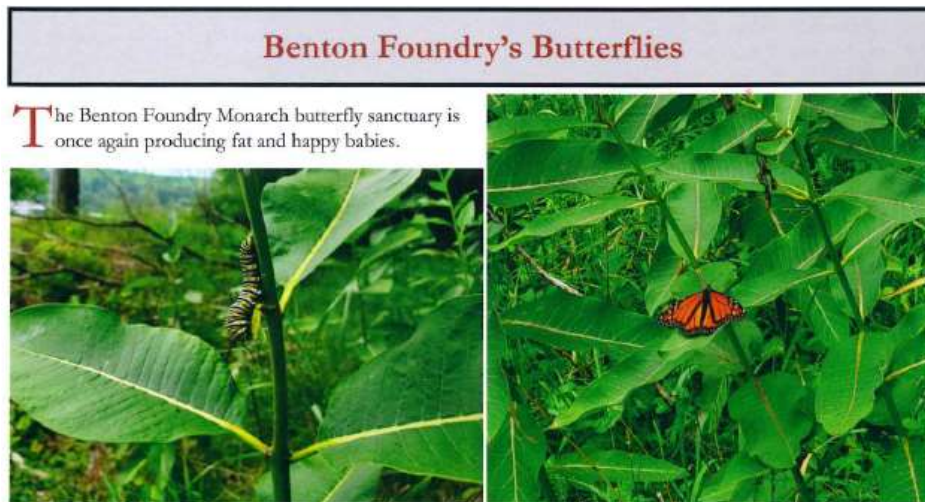
Environmental Categories

- Carbon (GHG) Emissions Measurement and Reduction
- Air Quality Water Use and Discharge Waste Management
- Beneficial Use Stormwater Material and Resource Conservation
- Community Engagement

Foundry Process(es) Impacted

- Melt Pour Mold Core sand system/reclaim
- Shakeout Heat Treat Quench Finishing Shipping
- Maintenance Pattern Shop Casting Design
- Management Systems and Metrics
- Other, explain:

7. Add photos to enhance your application, if applicable.



Monarch Butterflies

A few fascinating facts about Monarch butterflies:

The surface of a Monarch's wing is covered with thousands of tiny, colorful scales. These tiny scales on the wings have been studied by biologists and aerospace engineers alike to better understand how they affect flight. Loss of these scales is what causes Monarchs to lose their color. After flying for a long period of time, these scales will fall off and the Monarch's wings will appear faded or even clear.

The Monarch's studded gold chrysalises are created by the coupling of a carotenoid pigment and a hill-like structure that reflects light from the peaks. They get the carotenoids from their diet of milkweed.

The Monarch caterpillar is a voracious eater and they can gain about 2700 times their original weight! Monarchs must con-



sume a lot of food in a short amount of time in order to have enough food stored to go through metamorphosis. Monarchs literally outgrow their skin FIVE times. These sheds or molts are called "instars". Once the caterpillar has reached their fifth instar, they will find a place to pupate.

Two black spots on the inside surface of their hind wings distinguish male Monarch butterflies from the females. Females generally have thicker veins on their wings and they do not have the two black spots.

If you notice a female on a milkweed plant, they are most likely laying their eggs there. You can then bring those leaves inside to raise your own Monarchs.

One female Monarch butterfly can lay an average of 300 - 500 eggs in the wild. Captive monarch butterflies average about 700

eggs per female over 2 to 5 weeks of egg laying, with a record of 1179 eggs in captivity.

Monarch butterflies smell and taste with their antennae and legs which are covered with sensory cells called chemoreceptors. These chemoreceptors help Monarchs find milkweed to lay their eggs on. Like Monarchs, when we smell and taste we are

actually sensing chemicals in our environment. We also have chemoreceptors, which are concentrated on our tongue as taste buds and in our nose. Monarchs use sensing chemicals in order to find their host plant, milkweed, quickly and accurately.

An overwintering Monarch typically lives 7-8 months compared to other generations that only live 2-6 weeks. During the summer breeding season, monarchs live for only 2-6 weeks. The monarchs that migrate to Mexico in the fall are different: They are born in late summer, stay alive all winter and migrate north the following spring.



Article -

Rebecca Chandler

<https://www.saveourmonarchs.org>

Visit this site for further information and sources.

Photographs were taken by *Kevin Trychta* outside the foundry where monarchs and their caterpillars were enjoying our milkweed.

The duality of our industry existing in harmony with the most delicate of life.

