

The Pollinator Game

An interactive introduction to
Pollinators



Designed by the
E. "Kika" de la Garza
Plant Materials Center



Based on "The Forage Game"
by the

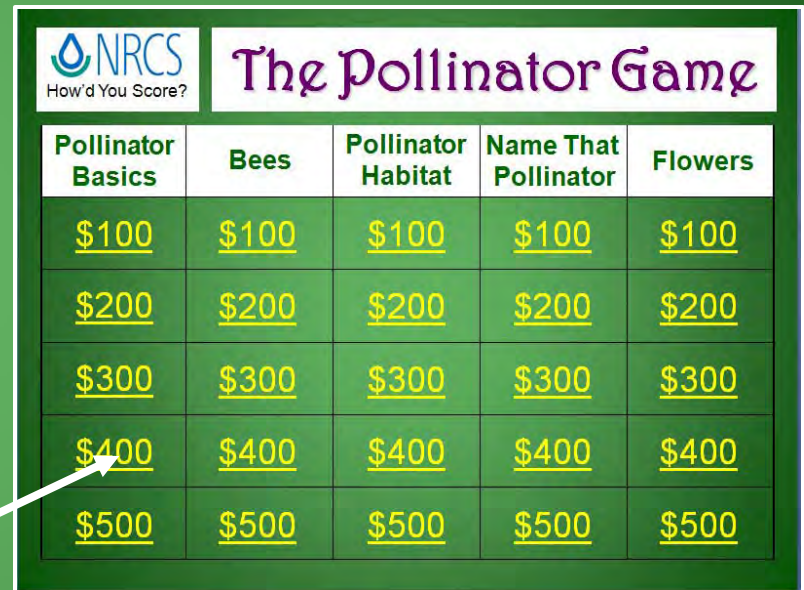


How to Play the Game and Learn!

- Remember this is a game designed to teach you about pollinators.
- Do not be concerned if you do not know the answer to a question.
- Please close any Internet connections except for the game.

How to Play the Game and Learn!

- The opening page of the game looks like this.
- Use mouse to select any value to reveal an answer. (Be sure to touch the number within the box.)



Pollinator Basics	Bees	Pollinator Habitat	Name That Pollinator	Flowers
<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>
<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>
<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>
<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>
<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>


How to Play the Game and Learn!


- For some answers, more than a simple question is presented.
- Be patient or click where indicated. Clicking will take you to another page or sometimes to the Internet.
- If you wind up on the Internet, be sure to (close) the Internet link when done.

\$300 Answer from Bees

b) Well kept lawns

See the Xerces fact sheet
Nests for Native Bees to learn more about
proving nest sites for bees.

To read the fact sheet,
click here. 




How to Play the Game and Learn!


- If you were correct, tally your points on a sheet of paper.
- Sorry, no points if you were wrong.



How to Play the Game and Learn!


- When you are finished with a question, click on the  to go back to the game page and select another question.


\$300 Answer from Pollinator Basics



c) \$20 billion

This includes \$3 billion in crops pollinated by native bees.



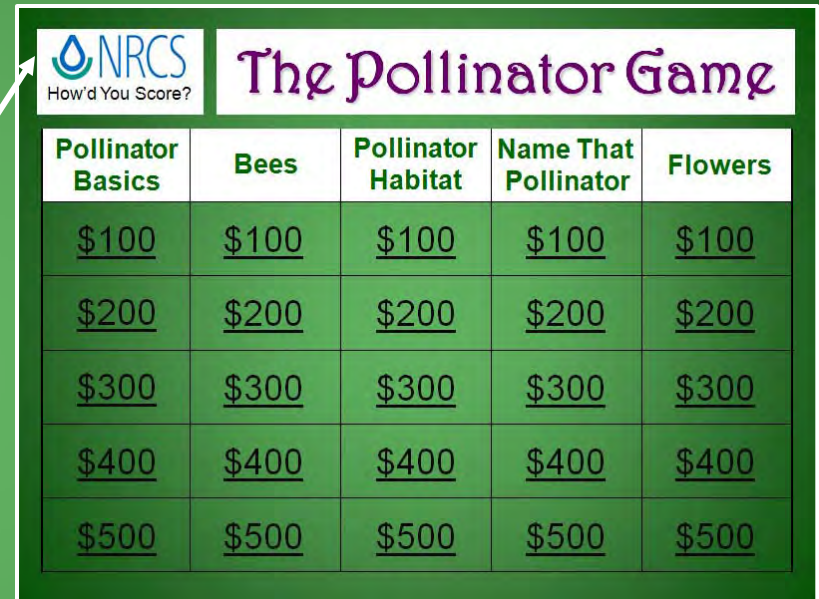
 **The Pollinator Game**
How'd You Score?


Pollinator Basics	Bees	Pollinator Habitat	Name That Pollinator	Flowers
<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>
<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>
<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>
<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>
<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>

- If you want to see the question/answer again, just select the question again from the opening screen.
- Sorry, no points on do-overs.

How to Play the Game and Learn!

- When you have gone through all the questions, click on the NRCS logo at the top left of the opening screen.



 NRCS How'd You Score?	The Pollinator Game			
Pollinator Basics	Bees	Pollinator Habitat	Name That Pollinator	Flowers
<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>
<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>
<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>
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<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>

Ready to start?

The Pollinator Game

Pollinator Basics	Bees	Pollinator Habitat	Name That Pollinator	Flowers
<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>
<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>
<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>
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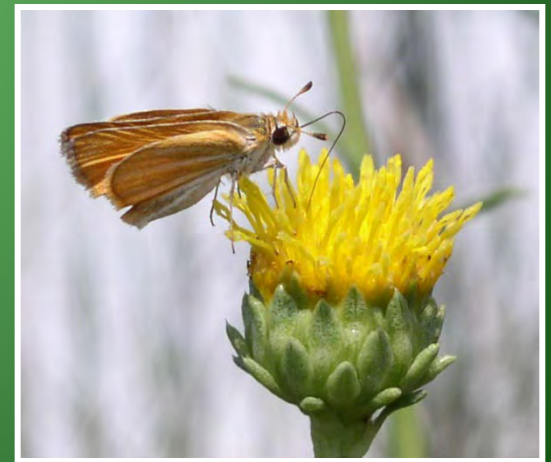
\$100 Question from Pollinator Basics

While they are commonly seen on flowers,
_____ are very poor pollinators
compared to (hairy bodied) bees.

\$100 Answer from Pollinator Basics



Butterflies



\$200 Question from Pollinator Basics

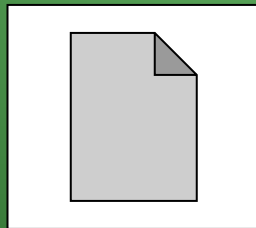
_____ of the world's 250,000 flowering plants are estimated to rely on animal pollinators (which includes insects).

- a) 20% - 40%
- b) 40% - 60%
- c) 60% - 80%
- d) 80% - 100%

\$200 Answer from Pollinator Basics

c) 60% - 80%

To see the Xerces
“Pollinators In Natural
Areas” Fact Sheet [click here.](#)



\$300 Question from Pollinator Basics

In 2000, the estimated economic (\$) value of insect pollinated crops in the U.S. was _____.

- a) \$5 billion
- b) \$10 billion
- c) \$20 billion
- d) \$50 billion

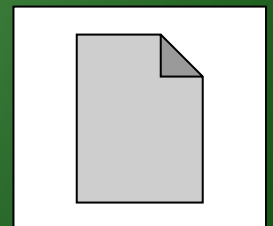
\$300 Answer from Pollinator Basics



c) \$20 billion

This includes \$3 billion in crops pollinated by native bees.

To download the Xerces “2008 Farm Bill Benefits to Crop Pollinators” Fact Sheet [click here.](#)



\$400 Question from Pollinator Basics

Roughly _____ of global crop production relies on animal pollinators.

- a) 15%
- b) 35%
- c) 55%
- d) 75%

\$400 Answer from Pollinator Basics



b) 35%

87 of the 124 most common crops require pollinators.

Grains are **wind pollinated** and do not require animal pollinators. Common examples include: corn, wheat, and rice.



\$500 Question from Pollinator Basics

What are the two basic habitat needs of pollinators?

\$500 Answer from Pollinator Basics

A diversity of native flowers
available throughout the season
(for food) and
egg-laying or nesting sites.



\$100 Question from Bees

The majority of bee species
(about 70%) nest in

_____.

(Hint: where?)

\$100 Answer from Bees

The ground

They dig narrow tunnels that lead to a small number of brood cells (where they raise young).

The other 30% nest in wood or other cavities.



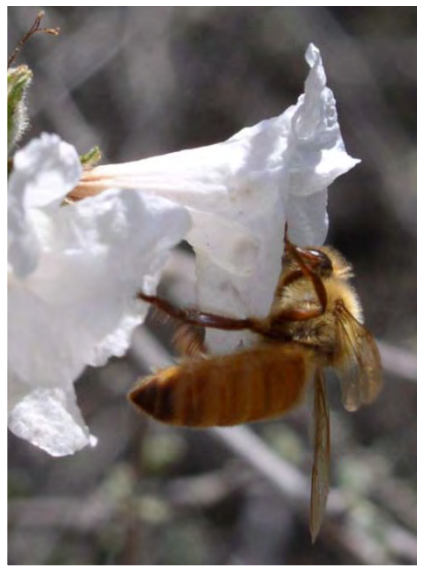
Mining bee (*Andrena*)
at nest entrance
©Matthew Shepherd/
The Xerces Society

\$200 Question from Bees

There are about _____ species of **native bees** in North America.

- a) 500
- b) 1,000
- c) 2,000
- d) 4,000

\$200 Answer from Bees

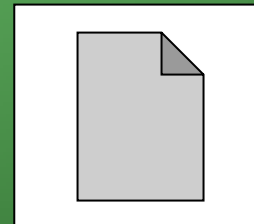


d) 4,000

Native bees range in size from
< 1/8 inch to > 1 inch.



To read more about
native bees click here.



\$300 Question from Bees

Which of these is **NOT** an important nesting site for bees?

- a) Bare ground
- b) Well kept lawns
- c) Dead Trees
- d) Untidy corners of rough grass
- e) Abandoned rodent nests

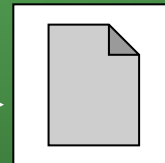
\$300 Answer from Bees

b) Well kept lawns

See the Xerces fact sheet
Nests for Native Bees to learn more about
providing nest sites for bees.



To read the fact sheet,
click here.



\$400 Question from Bees

Honey bees are not native to the
Americas.

How did they get here?

\$400 Answer from Bees

They were brought over by
European colonists.



Honeybee on
Peach Blossom



\$500 Question from Bees

In 2006, the National Research Council reported that in the U.S. both managed honey bee colonies and wild pollinator populations showed significant _____.

\$500 Answer from Bees

Honeybee Hives
©Matthew Shepherd/
The Xerces Society

Declines



\$100 Question from Pollinator Habitat

True or False?

Adding pollinator habitat to your land will only benefit pollinators.

It will not provide habitat for other wildlife.

\$100 Answer from Pollinator Habitat



False

For example: Berries, fruits and seeds produced by plants **after pollination** as well as pollinator larvae (caterpillars) provide food for young birds.



\$200 Question from Pollinator Habitat

Research suggests that native plants are _____ times more attractive to native bees than introduced plants.

- a) 2 times
- b) 4 times
- c) 10 times
- d) 50 times

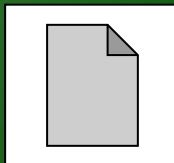
\$200 Answer from Pollinator Habitat



4 times



To download the Xerces
“Plants for Native Bees
in North America” fact
sheet, click here. →



\$300 Question from Pollinator Habitat

What are two important steps in creating pollinator habitat?

\$300 Answer from Pollinator Habitat

- Cultivate native plants, especially those that provide nectar or larval food for pollinators.
- Supply water for all wildlife.
- Install houses for bats.
- Install nest boxes for bees.
- Supply salt/mineral licks for butterflies.



Points for any 2 listed above.

\$400 Question from Pollinator Habitat

Butterflies and moths must
lay their eggs on specific

_____ for their larva
(caterpillars) to eat.

\$400 Answer from Pollinator Habitat

Host Plants



Adult Queen Butterfly on
Frostweed



Queen Butterfly Caterpillar on
Climbing Milkweed (host plant)



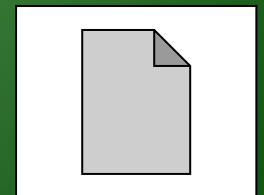
\$500 Question from Pollinator Habitat

Name 2 factors (of the many)
that have had a negative impact
on pollinators.

\$500 Answer from Pollinator Habitat

- Loss of floral diversity and habitat due to increasing urbanization
- Expansion of intensive agriculture
- Widespread use of pesticides
- Disease and parasites
- Climate change
- Invasive plants

To see the Xerces “Pollinators In Natural Areas” Fact Sheet [click here.](#)



\$100 Question from Name That Pollinator

pollinate tomato plants
(as well as many native
members of the Solanaceae,
or “tomato,” family).

\$100 Answer from Name That Pollinator

Bumble bees



Bumble bee approaching a tomato flower
©Matthew Shepherd/ The Xerces Society



\$200 Question from Name That Pollinator

pollinate apple flowers.

\$200 Answer from Name That Pollinator

Honeybees and
Blue mason orchard bees

You get the 200 points if you
got either answer.



\$300 Question from Name That Pollinator

pollinate figs.

\$300 Answer from Name That Pollinator

Fig Wasps

(There are over 800 kinds
of fig wasps!!!)



\$400 Question from Name That Pollinator

pollinate bananas.

\$400 Answer from Name That Pollinator

Birds and Fruit bats

You get the 400 points if you
got either answer.



\$500 Question from Name That Pollinator

pollinate cranberries.

\$500 Answer from Name That Pollinator

Native bees

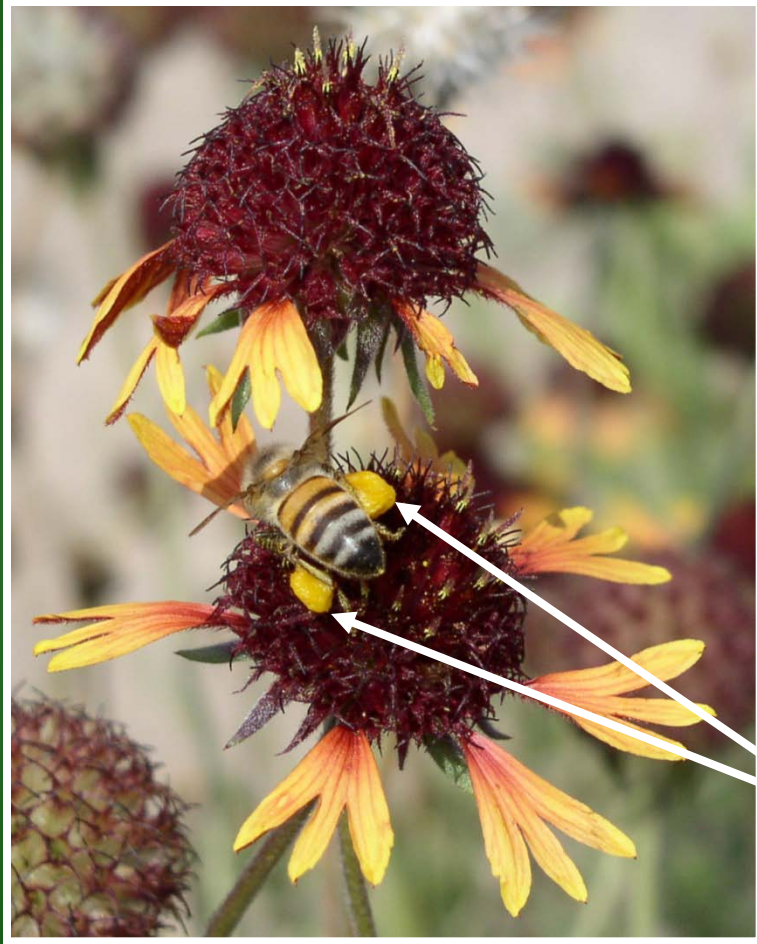
Over 40 species of native bees
pollinate cranberries.



\$100 Question from Flowers

What are the two most common products produced by plants to attract pollinators?

\$100 Answer from Flowers



Pollen and Nectar

Notice the pollen sacs
full of gathered
pollen.



\$200 Question from Flowers

Pollinators assist flowers by moving _____ from the male parts of the flower (stamens) to the female parts (stigma) of the flower.

\$200 Answer from Flowers



Pollen

Female Stigmas

Male Stamens

Many plants cannot make seeds or fruits without pollen transfer.



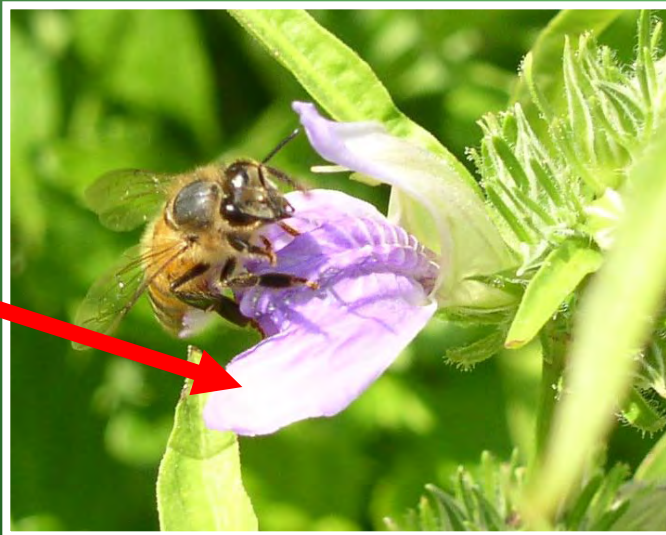
\$300 Question from Flowers

Flowers in the colors
blue, purple, violet, white, and
yellow tend to attract
_____ as pollinators.

\$300 Answer from Flowers

Bees

Some flowers have “lips” that act as landing pads for bees.



\$400 Question from Flowers

Red tubular flowers tend to
attract _____
as pollinators.



Red Sage



Turk's Cap

\$400 Answer from Flowers

Hummingbirds



Flower nectar has a ratio of about 1 part sucrose (table sugar) to 3 or 4 parts water.

This is why the 1:4 ratio is recommended for hummingbird feeders.



\$500 Question from Flowers

Strong smelling, white flowers that bloom or are open at night tend to attract _____ and _____ as pollinators.

\$500 Answer from Flowers

Moths and Bats



So how did you do?

>\$7000 = Excellent!

You must have pollinator friends.

\$5000-7000 = Pretty good!

<\$5000 = Bet you learned a lot!



If you got here by accident,
click here to return to the questions.

For More Information:

- [USDA NRCS Plant Materials Program](#)
- [Plant Materials Program - Plants for Pollinators](#)
- [PLANTS NRCS documents for pollinator conservation and enhancement](#)
- [Xerces Society for Invertebrate Conservation](#)
- [North American Pollinator Protection Campaign/Pollinator Partnership \(NAPPC\)](#)
- [NAPPC Eco-Regional Guides to Pollinator-Friendly Plantings](#)
- [CUS Forest Service - Celebrating Pollinators](#)



If you got here by accident,
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Our Thanks To:

- **Information Sources**

- Xerces Society for Invertebrate Conservation
- North American Pollinator Protection Campaign
- The Pollinator Partnership
- Wildlife Habitat Council

- **Matthew Shepherd/ The Xerces Society for bee photos**



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