PVCA Volunteer Handbook

Featuring:

muddy paws marsh

Penns Valley Conservation Association (PVCA)

PVCA's Mission is to serve as a steward for the natural and cultural communities in the Upper Penns Creek watershed. We seek to preserve and honor the agricultural roots of Penns Valley by protecting and conserving its waters, farmlands, forests and rural heritage.

PVCA's Vision: We envision an engaged community, where growth is balanced with support for healthy natural systems that foster the local economy. Our valley has dark night skies, clear streams, healthy forests, prosperous farms, and local jobs.

www.pennsvalley.net

Facebook: Penns Valley Conservation Association
Twitter: @pvcaeducation

Field trips are sponsored by the Penns Valley Conservation Association (PVCA) and Muddy Paws Marsh with special thanks to a Pennsylvania Department of Environmental Protection Growing Greener Grant. No School Funds are used. We hope you enjoy the program

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Topics covered in this Handbook

Wetlands
Marsh Basics
Muddy Paws Marsh
Working with Children
Questions; Vocabulary; Activities
Guidelines for PVCA Volunteers (Appendix)

Wetlands

What is a wetland?
A wetland is an area between landforms and bodies of water, such as rivers, lakes or oceans, where water is present for extended periods of time. Wetlands include marshes, swamps, bogs and fens. One difference between these types of wetlands is "where the water comes from" to form the wetland. The US Environmental Protection Agency (from EPA Fact Sheet 2001) has described these as follows:

MARSHES are periodically saturated, flooded, or ponded with water and characterized by herbaceous (non-woody) vegetation adapted to wet soil conditions. Marshes are further characterized as tidal marshes and non-tidal marshes.

SWAMPS are fed primarily by surface water inputs and are dominated by trees and shrubs. Swamps occur in either freshwater or saltwater floodplains. They are characterized by very wet soils during the growing season and standing water during certain times of the year.

BOGS are freshwater wetlands characterized by spongy peat deposits, a growth of evergreen trees and shrubs, and a floor covered by a thick carpet of sphagnum moss. These systems, whose only water source is rainwater, are usually found in glaciated areas of the northern United States.

FENS are ground water-fed peat forming wetlands covered by grasses, sedges, reeds, and wildflowers. Willow and birch are also common. Fens, like bogs, tend to occur in glaciated areas of the northern United States.
http://water.epa.gov/type/wetlands/outreach/upload/types.pdf

Why are Wetlands important? (Adapted from Petaluma Wetlands Alliance)
While other factors such as flora and fauna also help determine the type of wetlands, all wetlands are an important part of the ecosystem and have many essential functions including:
1) Wetlands reduce flooding and erosion downstream by holding water during major storms. Wetlands are an important link between the run-off from the highlands and surrounding city infrastructure (roads, parking lots) and the streams, creeks and rivers flowing into larger bodies of

water (bays, lakes and oceans). The retention of the water is like a giant sponge that holds and slows the water as it flows through the wetland.
2) As the water is retained and moves slowly through a wetland, natural processes such as decomposition, plant growth and food webs occur and these help clean the water as it flows through the wetland.
3) Many wetlands store water that benefits groundwater supplies.
4) "Wetlands are among the world's most productive ecosystems in the mass of plants and animals produced per acre per year! Wetlands provide critical habitat for many plant and animal species. Many species of fish and seafood use wetlands as their nursery. Over half of the world's migratory birds depend on wetlands to survive during their annual migrations north or south."
5) Wetlands contribute to the global production and use of the essential levels of nitrogen, sulfur, carbon dioxide, oxygen and methane.
http://petalumawetlands.org

How do Wetlands Work? (Adapted from Petaluma Wetlands Alliance)
"Healthy wetlands are complete ecosystems, containing many species of microscopic organisms, invertebrates, plants, fish, birds, reptiles, amphibians, and mammals that form a complex food web, or series of food chains." Wetland plants use the sun to make their own food but need the nutrients from the wetland water and soils to be successful. Vast amounts of nutrients are produced during the process of decomposition, in which dead plant and animal material break down and convert into nutrients usable by the plants. The technical name for the collection of this material in the wetland is *detritus*. Detritus is an important part of the wetlands food web. Microorganisms, small insects, and plants feed on detritus and these species attract animals such as small fish, adult insects and other invertebrates, which in turn attract larger animals such as birds, raccoons, and larger species of fish to feed on them. Many animals also visit wetlands for the plants themselves, such as deer, squirrels and seed eating birds. As plants and animals die in the wetland the process continues and new detritus is formed. The complex food web and the processes of decomposition make wetlands some of the most diverse and nutrient rich places on earth. It is important to understand how these productive wetland ecosystems connect within the larger ecosystem because changes in the wetland will impact changes of the ecosystem as a whole.
Additional information at:
http://water.epa.gov/type/wetlands/index.cfm
http://www.wetlands.org/Whatarewetlands/tabid/202/Default.aspx

Marsh Basics

Marshes are wet dynamic ecosystems that hold a wide variety of plant and animal species. There are tidal (coastal) or non-tidal (inland) and they can be fresh or salt water in composition. Inland marshes often occur in lowlands that are near moving bodies of water that drain slowly. Muddy Paws Marsh is an example of an inland fresh water marsh. There are periods when Muddy Paws Marsh has an abundance of water. Spring and early summer, as the uplands shed their snow and the rain in the area increases, are usually the wettest times of the year. There are also times when the water level decreases and some land drains and becomes dry. Muddy Paws Marsh also has some vernal pools, which are areas that can be dry for large parts of the year, but when wet create a great habitat for amphibians such as frogs, toads and salamanders to lay eggs. Vernal pools are used as a source of water for many other animals like deer.

Muddy Paws Marsh

In 1940, the land that is now known as Muddy Paws Marsh was drained to create agricultural fields. In 1991, the land was purchased by Greg and Mary Kay Williams and they decided to return the land to its pre 1940 state, a wetland. The Williams worked with many conservation associations including: ClearWater Conservancy, Centre County Conservation District, Ducks Unlimited, Penns Valley Conservation Association, the Pennsylvania Department of Environmental Protection and U.S. Fish and Wildlife Services, to re-create, improve and restore the former wetland. Muddy Paws Marsh is now a thriving 25 acre restored wetland and educational center and serves as an important habitat within the Upper Penns Creek Watershed. The preserved wetland helps to purify water that flows through the watershed to Penns Creek, helps control flooding during times of heavy rainfall and spring run-off, and most importantly, creates a habitat for a variety of wildlife such as four varieties of frogs, nesting birds such as American Bittern, and migratory birds including the Least Sandpipers.

Part of the mission of this recreated landscape is to help visitors enjoy, appreciate and learn about the importance of environmental stewardship. As part of this mission, Muddy Paws Marsh offers educational programs for the community and schools throughout the year and since 2009, Muddy Paws Marsh has been an official site of the Penn State Extension Master Gardeners of Centre County Program. The wonderful demonstration pollinator garden, the pond, and the wetland attract

migrating birds and visitors to this beautiful stretch of Penns Creek – anglers welcome.

Many school and community groups visit as well as several Penn State University classes. The wetland is used as an outdoor classroom for Penns Valley Elementary school students, who come annually to learn about aquatic insects, plant varieties, pollinators and wetlands. The Muddy Paws Marsh landscape fits into the 3rd and 5th grade curriculum nicely, as you will read in the next section. "Muddy Paws Marsh showcases the biodiversity of a natural ecosystem," says Mary Kay. "We are pleased to be able to provide programming for people to understand the value of wetlands." Additionally, there are self-guided signs for visitors to reference as they travel around the marsh.

Each spring, an annual Frog Festival is held at Muddy Paws Marsh. At the Festival, there are programs about frogs for families -- focusing on art, science, and play at hands-on learning stations. During this free program visitors learn what types of frogs live at Muddy Paws Marsh and other marshes in Centre County, listen for frog 'songs', discover the life cycle of frogs, and even learn how to catch and hold a frog.

Why Muddy Paws? Muddy Paws Marsh got its name from the William's wonderful dog, Max, who loved to play and romp in 'his' wetland daily and get very muddy! Muddy Paws Marsh is wonderful place to visit at all different times of the year.

Working with Children

Thank you for volunteering for the Penns Valley Conservation Association (PVCA) and Muddy Paws Marsh. We hope you enjoy your time. The following section outlines some guidelines for working with children and the type of information they are learning in the schools as well as during their visits to Muddy Paws Marsh.

- Encourage students (and yourselves) to ask questions and figure out the answers themselves. Example: Student -- What is that bee doing? Instead of answering the question by saying, "collecting food and pollinating that flower" ask them: "What do you think?" You can then guide them to new questions that will help them figure out (learn) the answer. Example: If the student answers "getting food". You can ask them "Why is that important?" and "Do you know what else is happening?" If they say "no" – provide some additional information like "have you

ever seen a bee up close and noticed yellow sacs on their body?" "Do you know what those are?" -- Student answer -- "pollen OR no" then you can say "that's interesting, I wonder why carrying those sacs might be important?" ….

- It is always okay to say that you do not know the answer, but encourage them to ask someone that might have more information or find out yourself throughout the day and report back to them at the wrap up or at the end of the program.
- Have fun. Keep the learning fun and moving. Encourage students to get all their senses involved, for example touch/smell the flower (not pick) and the soil, look closely at the insects and listen to the variety of bird and insect sounds. However, we do not encourage tasting, you may point out that many of the plants in the marsh are edible like cattail. Leave the tasting for lunch.

Basic questions and vocabulary students are studying at school (From Penns Valley Unit Guides):

3rd Grade

Scientific Investigations (SI): What is a scientist? What do they study? Why and with what tools? What is the scientific method (How used)? (*Observation* – What are you curious about?; *Hypothesis* – Ask a questions that will be the basis of your study?; *Prediction* – What are possible solutions to the questions?; *Experimentation* – what is the plan to test and analyze your hypothesis?; *Conclusion* – what were the results of the investigation – did you prove or disprove your hypothesis?
SI Vocabulary: Observation, Classify, Predict, Compare, Hypothesis, Procedures, Data, Analyze, and Measure

Plant Growth and Development: What are the characteristics of living and non-living things? What are the components of the Water Cycle? (*Evaporation* (transpiration); *Condensation*; *Precipitation*; *Accumulation* (collection)). Visit http://water.usgs.gov/edu/watercycle.html for a detailed visual aide. How do plants use energy from the sun, air and water to produce their own food? What are the parts of a flower? (*Pistil*, *Stamen*, *Petals*, *Ovary*, *Seed*) How do these parts work together to reproduce? What is pollination – how does it work? What are the environmental conditions necessary for a seed to germinate? How do plants adapt and survive? What are the similarities and differences between plants species? What do plants need to move through their life cycle and reproduce?

Additional Plant Vocabulary: photosynthesis, chlorophyll, fertilization, inherited traits, offspring

5th Grade

Ecosystems: **Unit Essential Question**: How do interactions and relationships within and among living organisms and systems impact an ecosystem? **Key Learnings Points**: 1. Interactions within and among living systems cause changes in matter and energy. 2. The web of relationships link organisms to each other and to their natural environment. 3. An ecosystem is a community of organisms that interact with each other and the environment. Humans may affect ecosystems in many ways.
Vocabulary of note: natural selection, adaptation, animal behaviors, variation, wetland, interdependent relationships, cost/benefit, producer/consumer, ecosystem
Muddy Paws Marsh Relevance: Many of these questions are answered in the activities that are provided later and these questions are the primary reason for 5th grade students to visit Muddy Paws Marsh.

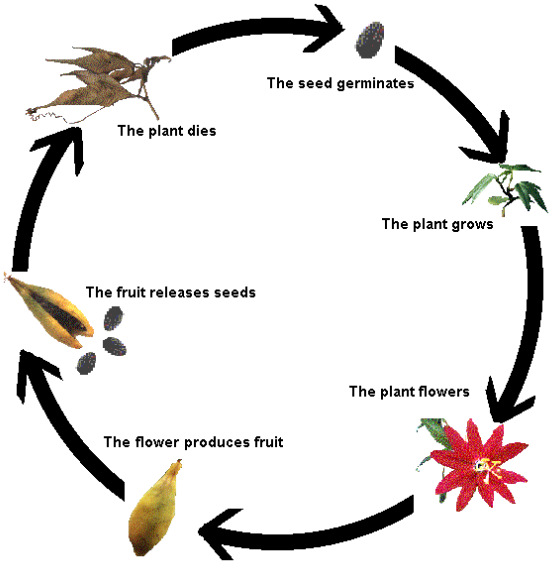
Landforms: **Unit Essential Question**: How do scientists observe changes and patterns of interaction to explain and predict the Earth's structure, process and cycles? **Key Learning Point**: Changes take place when objects or events interact.
Related Vocabulary: water cycle, floodplain
Muddy Paws Marsh Relevance: Muddy Paws was a marsh then a farm and now a reclaimed marshland, how have these changes impacted the environment? What is happening today?

Variables: **Unit Essential Question**: How can scientists develop a theory using scientific method and technological design to discover relationships between objects and events? **Key Learning Points:** Importance of interactions, dependencies and cause/effect. Theories are developed and tested through the application of the scientific method.
Related Vocabulary: observation (direct and indirect), inference, outcome, experiment design
Muddy Paws Marsh Relevance: Scientific method as in the Macro-invertebrate activity, explained in next section.

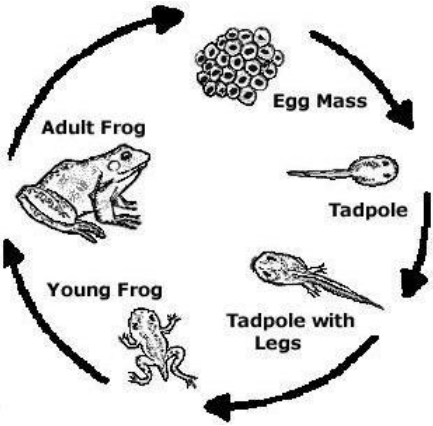
Types of Activities at Muddy Paws Marsh

Life Cycles, Pollination and Seed Dispersal

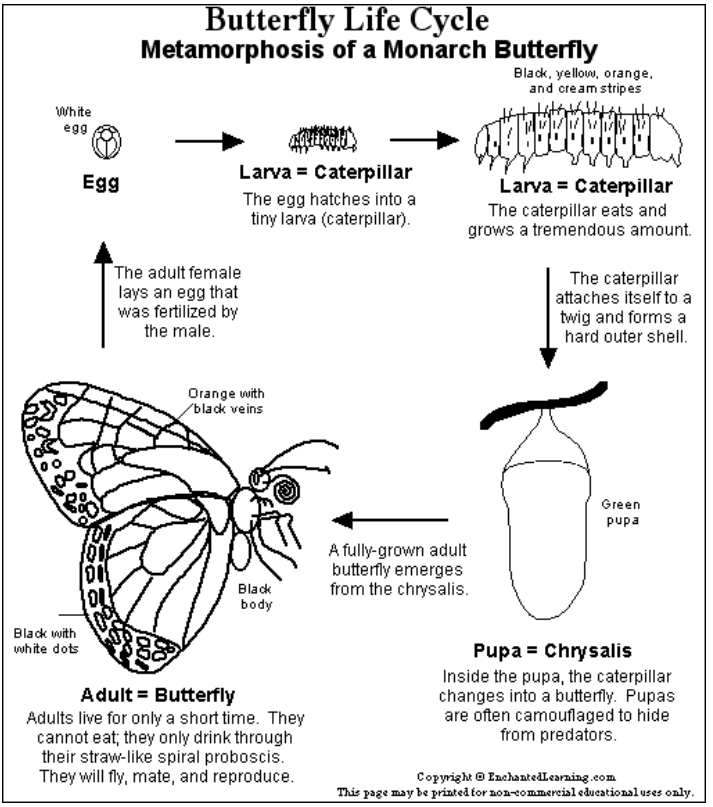
Three relevant life cycles for the students to know are plants, frogs and butterflies. It is not likely that you will have time to discuss all of the parts of the flower and what each part does, but it may be nice to mention that each plant part plays a vital role in the creation and growth of a new plant. Basic plant parts include *Roots* (anchor plant in the ground, pull nutrients and water from the soil and store food; *Stems* (support the plant and move water, nutrients and food through tubes called xylem and phloem to all the parts of the plant); *Leaves* (food production through photosynthesis which converts sunlight and carbon dioxide into food and oxygen); *Flower* (*Petals* attract pollinators, *Stamen* produce pollen and *Stigma* are sticky to collect pollen).



One of the aspects of plants that often gets the attention of students is how plants move – seed dispersal. Volunteers are encouraged to pick some plants to demonstrate the various ways that seeds travel. Two good examples are Cattail and Teasel. Let the students grab some Cattail seeds from a plant you already picked and let them throw them in the air to see how easily they travel in wind. Teasel travels differently, by seeds falling on the ground or through



birds. Take a dried teasel flower (remove the spiky parts carefully) and pound the dried flower on you hand to show the large amount of seeds that are produced. You can discuss a variety of different seeds that are found in the marsh and how they travel from place to place. For the Frog and butterfly life cycles please see the images provided.



http://biology.about.com/od/plantbiology/a/aa100507a.htm (Plant information)
Plant Image: http://2.bp.blogspot.com/-9vHQEvUdeYM/UDVj4xZfuMI/AAAAAAAAAFA/ybJZHoh69sc/s1600/38511582.gif
Frog Life Cycle: http://questgarden.com/84/66/7/090714140457/images/FrogLifeCycle.jpg

Macro-invertebrates:

There will be charts at the station for identification. One of the main reasons that we look at these macros is to help determine the health of the stream. Certain macros like scuds and snails are able to live in almost any quality of water. Other macros like the mayfly and stonefly (nymphs) are more sensitive to water cleanliness. Therefore, if you only find scuds and snails in the water, it tells you that the water is not as clean as the waters with an abundance of mayflies and stoneflies. A term that is often used to describe sensitive species is an “indicator species” since their presence helps to determine stream health – certain fish and

amphibians are also important indicators based on the cleanliness requirements of the waterway for their survival. The scientific method is inherent in the process of observing, catching and making conclusions about the waterway based on the species that are caught and identified.

Habitat Tag:
Habitat tag is an activity that demonstrates predator-prey relationships and habitat change. For this activity students pretend to be squirrels, foxes and trees and it is played like tag. The foxes chase the squirrels and the squirrels try to hide near trees while attempting to store enough food for the winter. The leader of the activity will adjust the habitat by taking away trees and demonstrate the impact that habitat change has on the population of squirrels and foxes.

Web of Life:
This activity demonstrates how the sun, plants and animals are interconnected using a ball of string to visually show these connections. The activity starts with someone as the sun and they hold a piece of the string. Another person suggests something that uses the sun for food (eg. a plant) and they pass the string to them (the sun holds the end). Then a 3rd person offers something that uses the plant for food (eg. a bee) and passes the string to them (holding a piece of the string). A 4th person says something that uses a bee for food (eg. a mouse) and so on, until everyone is included. The question can switch to who uses ___ for food OR what does ___ eat for food. This will create a web showing all the connections. The habitat question comes next – Which of the animals would you want to get rid of OR what if all the bees left/died/destroyed – What would happen to the others? The animal chosen will then drop their string – then, if the string a person is holding gets loose or is touched by the dropping of the bee's string they have to let go as well. Eventually, all strings fall and this leads to a discussion for how all of the animals play an important role in their habitat/ecosystem.

Animal Signs and Common Plants of the Marsh

Wetland Art and Journal Reflection
Activities will vary and provide the students with an opportunity to reflect on the habitat that surrounds them

Field Guides for Students and Scavenger Hunts
Students will have field guides, including a scavenger hunt to help them engage with the habitat while they move from station to station.

APPENDIX: Guidelines for Volunteers

Tell me and I may forget, teach me and I may remember, involve me and I learn – Ben Franklin

The great teacher inspires – William Arthur Ward

Thank you for volunteering for the Penns Valley Conservation Association (PVCA) and Muddy Paws Marsh, we hope you enjoy the time with us and learn in the process. Our role as educators is to engage visitors and enhance curiosity -- the learning will happen on its own.

Basic Information:
All school groups are required to have chaperones and usually a school nurse and teachers are always in attendance. Your role as a volunteer educator is to run the activities and engage the students. Disciplinary actions are the responsibility of the teachers and chaperones. We send letters to the teachers and families outlining these expectations.

Guidelines:
The guidelines below are to help you manage some of the particular situations that can arise when working with children. If there are any questions or problems you can always refer to the PVCA Educator (Jim Flanagan 862.202.9063) or site supervisor (Mary Kay Williams-Muddy Paws Marsh or Dan Shimp-Mountainside Homestead) for the best procedures.

- Before you start your activity, always be sure that there are chaperones with the group at your station. There should always be enough chaperones to manage the group.
- You should never be alone with a student.
- Never leave a child alone: provide students and chaperones with clear boundaries (within your sight) during an activity to avoid students wondering away.
- Injuries: Refer all injuries to the School Nurse. Students will need to have a chaperone as well as buddy to go and find the nurse OR send one chaperone to get the nurse for you. If there are not enough chaperones the whole group will need to travel together. Also, report all injuries to PVCA Educator or Site Supervisor so we can keep a record.
- If you notice anything that you feel is unsafe (activity, station or behavior) please inform the PVCA Educator or Site Supervisor.

- Bathroom: Encourage students to go to the bathroom in between activities. If this is not an option, the students will need to have a chaperone as well as buddy to go. If there are not enough chaperones the whole group will need to travel together.
- Encourage high fives and special handshakes with students to avoid too much touching. A good rule of thumb is to let the "child have the control of the touch" – shoulder and side hugs are preferable, if a hug is unavoidable.
- If you recognize any evidence of abuse, please report this to the PVCA Environmental Educator or Site Supervisor and we will work with the teachers to address the issue.
- Never give out personal contact information to students; you can let them know that they can contact you through the teachers at school or through PVCA.
- Weather: Most programs can continue in a light rain, however, if there is heavy rain or a thunderstorm, all groups must report to the closest covered space.

Many of the ideas from these guidelines come from the Missoula Active Kids wonderful volunteer handbook, ***Working with Kids: What You Need to Know to Make the Biggest Impact & Get the Most Rewards,*** that explores mentoring and the rewards of volunteering. Visit their website for their complete manual, if interested: http://www.co.missoula.mt.us/healthpromo/ActiveKids/pdfs/ActKidsHandbook2010.pdf

Clearances:
If you plan to work with children on a regular basis it is recommended that you obtain PA State Clearances. Here are the most commonly used clearance sites:

www.dpw.state.pa.us/findaform/childabusehistoryclearanceforms/index.htm

and

https://epatch.state.pa.us/Home.jsp

Thanks again for volunteering.

www.pennsvalley.net

Why Join PVCA:
PVCA's supporters share a practical, yet visionary commitment to preserve the habitats that all of us, people and wildlife, depend. Supporters come from all over the country as well as from Penns Valley. They include hunters and anglers, bird watchers and native plant enthusiasts, farmers, local business owners, valley residents, and visitors to the region. You can participate by becoming a member of PVCA, and by volunteering to help with our many ongoing projects.

Please visit www.pennsvalley.net to join online OR mail in the inserted Membership Form.

Thank you for volunteering for:

PENNS VALLEY CONSERVATION ASSOCIATION

&

muddy paws marsh

PENNS VALLEY
CONSERVATION ASSOCIATION

muddy paws marsh

UPCOMING EVENTS

Penns Valley Conservation Association (PVCA) sponsors Second Saturday Community Days every month from 2:00 pm – 4:00 pm at various Upper Penns Creek Watershed locations. PVCA also hosts annual events such as RiverSongs in the spring and CrickFest in the late summer as well as two annual community meetings. We hope to see you there. Please visit our website for information.
www.pennsvalley.net

Muddy Paws Marsh also hosts several events throughout the year including Soiree in the Swamp in the spring, FrogFest in early June and is the site of several PVCA Second Saturday Community Days events. Visit the PVCA website for details.

For more information on PVCA visit: www.pennsvalley.net
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