This exhibit explores plant adaptations through biological explanations and artistic photography. The visitor is taken into a microscopic realm unseen by the naked eye. It includes large 3-D images (3-D glasses provided) and a PowerPoint show.

Produced by the Botanic Garden of Smith College

See the exhibit online at
www.smith.edu/garden/exhibits/plant_adaptation/adaptationhome.html
Plant Adaptation Up Close, A Biological and Artistic Interpretation is an extraordinary new traveling exhibition produced by the Botanic Garden of Smith College in collaboration with the Smith Microscopy and Imaging Facility, and Northampton, Massachusetts artist Joan Wiener.

While the Earth’s diverse environments create many challenges for plant survival, plants have evolved with special adaptations that allow them to thrive under hostile conditions. This exhibit explores plant adaptations as diverse as clinging to rock cliffs and eating other plants. Biological explanations and artistic photography bring to life the resourcefulness and beauty of the plant kingdom. The viewer delves deep into a microscopic realm unseen by the naked eye. Imagine what an insect caught in a Venus flytrap might be seeing. Put on the 3-D glasses and enjoy!

The exhibition is available for rental for $2,000 for a two month period (minimum) and $750 for each additional month, plus shipping and insurance. The rental fee includes all panels, framed artwork, display labels and signs, a PowerPoint presentation about magnification (on disk), and 25 pairs of 3-D glasses. Display case objects explaining scanning electron microscopy are an additional $400.

**Exhibition Calendar**

<table>
<thead>
<tr>
<th>Date</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/24/2008–10/19/2008</td>
<td>Museum of the Gulf Coast, Port Arthur, TX</td>
</tr>
<tr>
<td>2/14/2011–5/14/2011</td>
<td>University of Northern Iowa Museums, Cedar Falls IA</td>
</tr>
<tr>
<td>4/13/2012–6/24/2012</td>
<td>Edsel and Eleanor Ford House, Grosse Points Shores, MI</td>
</tr>
</tbody>
</table>

See the exhibit online at  
www.smith.edu/garden/exhibits/plant_adaptation/adaptationhome.html

**For more information contact:**

Madelaine Zadik, Manager of Education and Outreach  
The Botanic Garden of Smith College  
Lyman Plant House, 16 College Lane  
Northampton, MA 01063 USA  
Phone: 413-585-2743, Fax: 413-585-2744  
mzadik@smith.edu, www.smith.edu/garden
Images of the Exhibition on View at the Botanic Garden of Smith College
General Information about Exhibition Rental

1. **Availability:** After July 15, 2012
2. **Rental Fee:** $2,000 for a two month period (minimum) and $750 for each additional month. This includes all panels, framed artwork, display labels and signs, a PowerPoint file (on disk) about magnification, and 25 pairs of 3-D glasses. For an additional $400 we will include materials that explain scanning electron microscopy, to be shown in a secure display case.
3. **Shipping Costs:** The borrowing institution pays all shipping expenses to and from the borrower.
4. **Insurance:** Insurance value of the exhibition is approximately $22,000, and the borrower is responsible for insurance coverage while the exhibition in under its control (including during shipping).
5. **Security Requirements:** Security requirements are similar to the “limited security” requirements of SITES. (See [www.sites.si.edu/host/security_search.htm#limited](http://www.sites.si.edu/host/security_search.htm#limited)). Personnel must be present at all times in the space while the exhibition is open to the public. Supervision by guard, student, volunteer, or receptionist is okay, and they may be performing other duties as well as watching the exhibition. Secure storage for shipping crates is required. The exhibition area must be locked and secure during closed hours. Fire protection must meet all local ordinances. The display case must be secured in some way.
6. **Space and Equipment Requirements:**
   i. Running feet for all the panels is about 60 feet, but that doesn't include any space between panels. At the Botanic Garden at Smith College we used about 85 running feet to display all the panels and artwork and a computer monitor that was running a Powerpoint presentation on a continuous loop. The exhibit was designed so that each of the 7 adaptations (each with a display panel and a piece of artwork) could stand alone. Therefore, if space is a limitation, it is possible to display fewer than the 7 plant adaptations.
   ii. The Botanic Garden of Smith College would provide the powerpoint file - so if you wanted to show that you would need a computer & monitor and electricity.
   iii. The display case materials explaining electron microscopy, require a minimum of 8 square feet of display case.
7. **Environmental Requirements:**
   i. The exhibition must be displayed indoors.
   ii. Direct sunlight must be diffused or eliminated to prevent fading.
   iii. None of the panels or artwork may come into contact with heating or ventilation outlets when it is on display or in storage.
   iv. The exhibition space must have humidity and temperature controls, to eliminate great fluctuations in either temperature or humidity.
8. **Sales:** Prints of the artwork are available for sale. You will be provided with retail prices and may keep a percentage of all sales, as arranged with the artist. Sales will be of reproductions ordered from the artist (not the framed prints in the exhibition).

For more information contact:
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mzadik@smith.edu, www.smith.edu/garden
Exhibition Panel Sizes and Artwork Dimensions

Display Panels
All panels are printed, laminated, mounted on gatorboard, and in frosted silver metal frames, ready to be hung.

<table>
<thead>
<tr>
<th>Number of Panels</th>
<th>Type of Panel</th>
<th>Size in inches (W × H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Title Panel and Introduction</td>
<td>59 × 19</td>
</tr>
<tr>
<td>7</td>
<td>Individual Plant Adaptations</td>
<td>30 × 44</td>
</tr>
<tr>
<td>2</td>
<td>3-D Images</td>
<td>25 × 32</td>
</tr>
<tr>
<td>2</td>
<td>Credit Panel and Artists Bio</td>
<td>12.5 × 26</td>
</tr>
</tbody>
</table>

Smaller Title Labels
These are titles and labels for the various elements in the exhibition. They are mounted on foam core and come with removable double stick tape to be easily applied to the wall.

<table>
<thead>
<tr>
<th>Number of Labels</th>
<th>Type of Panel</th>
<th>Size in inches (W × H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3-D Image Titles</td>
<td>4.5 × 15</td>
</tr>
<tr>
<td>1</td>
<td>3-D Image Explanation</td>
<td>11.5 × 15.75</td>
</tr>
<tr>
<td>1</td>
<td>3-D Image Plant Descriptions</td>
<td>11.5 × 15.75</td>
</tr>
<tr>
<td>1</td>
<td>PowerPoint Title and Explanation</td>
<td>11.75 × 15.75</td>
</tr>
<tr>
<td>8</td>
<td>Photo Labels</td>
<td>5.5 × 2.5</td>
</tr>
<tr>
<td>1</td>
<td>Photo Labels</td>
<td>5.5 × 3.5</td>
</tr>
</tbody>
</table>

Framed Artwork
The sizes of the frames pieces ready to be hung in the show is below.
(Please note that the sizes listed on the price list are for matted unframed prints.)

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Size in inches (W × H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Salvinia</td>
<td>34.25 × 29.25</td>
</tr>
<tr>
<td>1</td>
<td>Resurrection</td>
<td>24.25 × 20.25</td>
</tr>
<tr>
<td>1</td>
<td>Echevaria</td>
<td>28.25 × 24.25</td>
</tr>
<tr>
<td>1</td>
<td>Dodder</td>
<td>20.25 × 19.25</td>
</tr>
<tr>
<td>1</td>
<td>Boston Ivy</td>
<td>27.25 × 23.25</td>
</tr>
<tr>
<td>1</td>
<td>Venus FlyTrap diptych</td>
<td>28.25 × 19.25</td>
</tr>
<tr>
<td>1</td>
<td>Tillandsia</td>
<td>30.25 × 36.25</td>
</tr>
<tr>
<td>1</td>
<td>Trigger Hair</td>
<td>20 × 44</td>
</tr>
<tr>
<td>1</td>
<td>Composite</td>
<td>37.25 × 30.25</td>
</tr>
</tbody>
</table>

Images of all the panels and artwork in the exhibition are online at http://www.smith.edu/garden/exhibits/plant_adaptation/adaptationhome.html
**Display Case Items**

**Four text labels** - 5"×10.5" (digital file provided). The text references the letters for the stations below.

**A)** - bladderwort photo mounted on foamcore - 3.5"×4"
  - plexiglass holder
  - photo includes label (A)

**B)** - photograph (critical point dryer use) - 7"×10"
  - plexiglass riser 5"×5" and plexiglass holder
  - photo includes label (B)

**C)** - dried bladderwort in container with black background
  - forceps
  - dried bladderwort on metal support
  - plexiglass riser 2"×2"
  - magnifying glass and metal support
  - requires label (C)

**D)** - dried bladderwort on metal support coated with palladium gold
  - plexiglass riser 2"×2"
  - magnifying glass and metal support
  - requires label (D)

**E)** - photograph (critical point dryer use) - 7"×10"
  - plexiglass riser 5"×5"

**F)** - photograph (SEM with airlock system)
  - plexiglass riser 5"×5"

**G)** - photograph (Insert in photograph F)
  - photo includes label (G)

**H)** - Polaroid film (positive and negative) with image of bladderwort
  - requires label (H)

**I)** - Photoshop manual
  - requires label (I)

**J)** - Final product: framed artwork by Joan Wiener - 8.5"×9"
  - plexiglass riser 5"×5" and plexiglass holder
  - requires label (J)
**Meat Eaters**

**Carnivorous plants** are adapted to soils that are low in nitrogen, an element that is critical for plants to synthesize protein. Their protein needs are met by consuming insects or in rare cases small animals. Various adaptations have evolved to lure, capture, and digest prey.

**Vines** are well adapted to compete with trees and shrubs for sunlight. Rather than having evolved to survive in a shaded understory, vines cling to objects and position themselves where they receive more sun. Several diverse climbing mechanisms have evolved.

**Social Climbers**

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**Drifters**

**Floating aquatic plants** have structural adaptations that prevent them from sinking. By staying afloat they are able to absorb maximum sunlight and can easily exchange gases with the atmosphere. In addition, floating plants may heavily shade the water below, reducing the number of submerged species that compete with them for nutrients.

**Guzzlers**

**Drought-tolerant plants** have adaptations enabling them to live in dry environments. Such adaptations are essential since plants are composed mostly of water. One adaptation is to store water in enlarged organs. Another is to prevent water loss from the leaves or stems. Some plants cause growth or drop their leaves during dry periods.

**Revegetation plants** grow at the tips of stems or branches that have spent the growing season. In the rainy season, these plants flower and reproduce. After the rainy season, the plants die back and the leaves drop off, allowing the new plant to grow. Some species produce leaves and flowers in a single season.

**Meat Eaters**

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**Sympathetic plants** have an extra root system that grows where the shoot system is difficult to reach. This allows the plant to take advantage of nutrients in deeper layers of the soil.

**Epiphytes** are nonparasitic plants that have adapted to grow upon or attach to other plants without ever having roots in the soil. Positioned in the trees and on cliffs, they escape competition from ground-dwelling animals and receive more light than plants on the forest floor.

**Sunbathers**

**Desert plants** are adapted to living in intense heat and sun. With sunlight is needed for plant growth, many plants have adapted by reflecting or blocking sunlight, while a few orient their leaves away from direct sunlight.

**Vegetarians**

**Parasitic plants** are adapted to live off the hard work of other plants. Using specialized roots, they invade the tissue of the host plant, extracting food, minerals and water. While they rely on the host plant, they rarely have them. There are over 3,000 parasitic plant species worldwide, each of which have a narrow range of host species.
3-D PANELS
(viewed in the exhibition with 3-D glasses)

Bladderwort
_Utricularia inflata_

American pitcher plant
_Sarracenia purpurea_

For more information on the 3-D panels see
http://www.smith.edu/garden/exhibits/plant_adaptation/3Dimages.html
Digitally Colorized Electron Photomicorographs
By Joan Wiener
joanwiener@yahoo.com       413-584-3983       www.joanwiener.com

Framed pieces are part of the exhibition. Borrowing institutions may sell unframed prints through their gift shops according to the pricelist below, through arrangements with the artist. Please note, sizes are in inches and the framed prints in the exhibition will be slightly larger since the sizes listed here are of matted, unframed prints.

- Prices are for matted unframed prints
- Prints made on Somerset Velvet paper using an Iris printer with archival inks
- Limited edition prints available in other sizes
- Framing available — contact Joan Wiener
- % of sales go to hosting institution

<table>
<thead>
<tr>
<th>Artwork</th>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salvinia</td>
<td>28 x 33</td>
<td>$350</td>
</tr>
<tr>
<td>Resurrection</td>
<td>24 x 29</td>
<td>$300</td>
</tr>
<tr>
<td>Boston Ivy</td>
<td>22 x 26</td>
<td>$300</td>
</tr>
<tr>
<td>Dodder</td>
<td>18 x 19</td>
<td>$250</td>
</tr>
<tr>
<td>Composite</td>
<td>26 x 32</td>
<td>$325</td>
</tr>
<tr>
<td>Tillandsia</td>
<td>35 x 29</td>
<td>$350</td>
</tr>
<tr>
<td>Venus Flytrap diptych</td>
<td>18 x 27</td>
<td>$300</td>
</tr>
<tr>
<td>Echevaria</td>
<td>22 x 24</td>
<td>$300</td>
</tr>
<tr>
<td>Trigger Hair</td>
<td>19 x 47</td>
<td>$400</td>
</tr>
</tbody>
</table>