Aquatic Weed Identification and Control

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and Agriculture

Aquatic Weed ID

Submersed

Emergent/Floating

Riparian

Potamogetons: broad vs narrow leaves

Aquatic Weed ID

American Pondweed,*Potamogeton nodosus*

Aquatic Weed ID

Leafy Pondweed, *Potamogeton foliosus*

Curlyleaf Pondweed, *P. crispus*

Non-native

Aquatic Weed ID

Curlyleaf Pondweed, *Potamogeton crispus*

Aquatic Weed ID

Eurasian Watermilfoil, *Myriophyllum spicatum*

Aquatic Weed ID

Eurasian Watermilfoil, *Myriophyllum spicatum*

Note minor branches all come off single axis, and unbranched. Robust stems, often red.

Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*

- Non-native
- Locally a severe pest, in still-water situations
- Distinctive above-surface foliage
- Attractive

Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*

Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*

Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*

Aquatic Weed ID

Carolina Fanwort, *Cabomba caroliniana*

- Non-native, relatively recent
- Becoming common and a pest in Delta

Aquatic Weed ID

Carolina Fanwort, *Cabomba caroliniana*

Note that minor branches themselves have branches, unlike watermilfoil

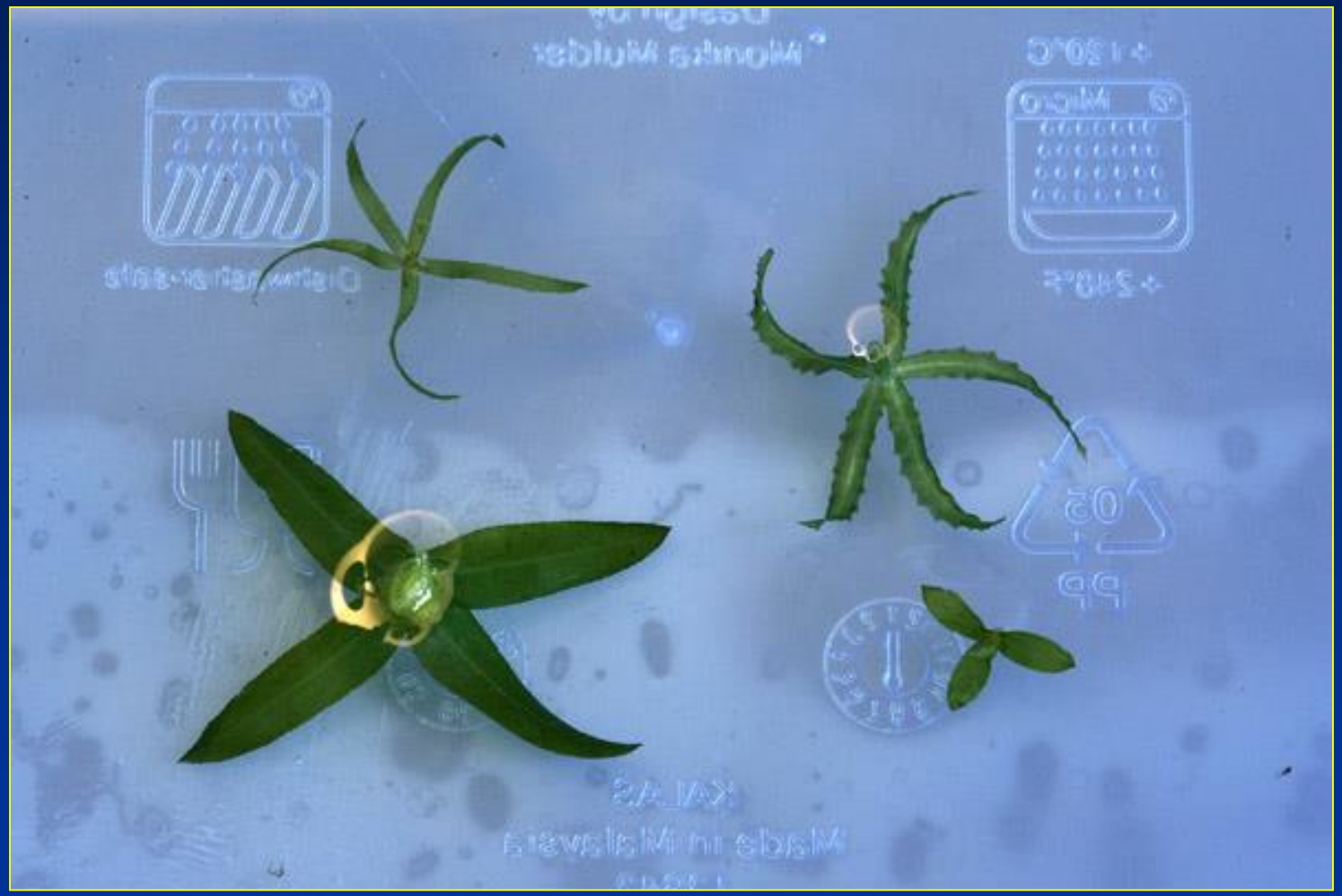
Aquatic Weed ID

Carolina Fanwort, *Cabomba caroliniana*

Aquatic Weed ID

Submersed plants with whorls of single leaves

Highly variable!



Aquatic Weed ID

Hydrilla, *Hydrilla verticilata*

Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*

Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*

HIGHLY VARIABLE!

Aquatic Weed ID

Hydrilla

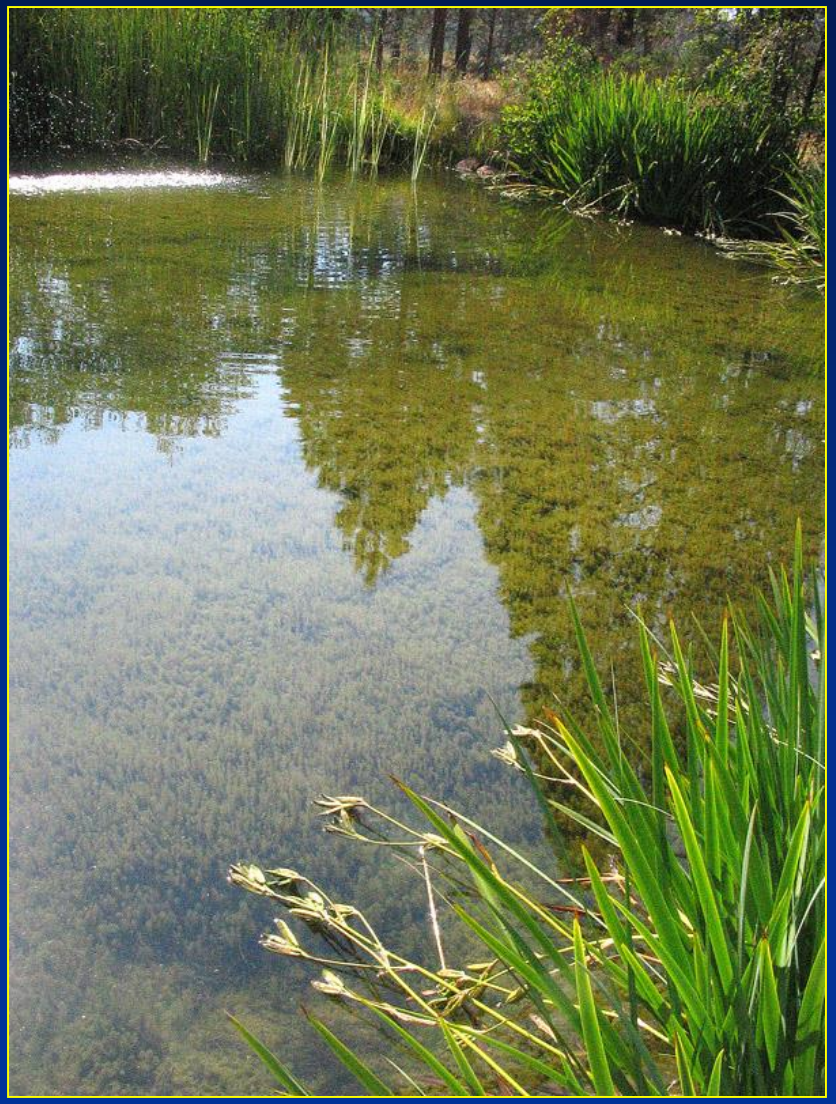
Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*

Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*

Foothill pond
6’-10’ deep



Aquatic Weed ID

Egeria, *Egeria densa*

Aquatic Weed ID

Egeria, *Egeria densa*

Aquatic Weed ID

Egeria, *Egeria densa*

Aquatic Weed ID

Egeria, *Egeria densa*

Aquatic Weed ID

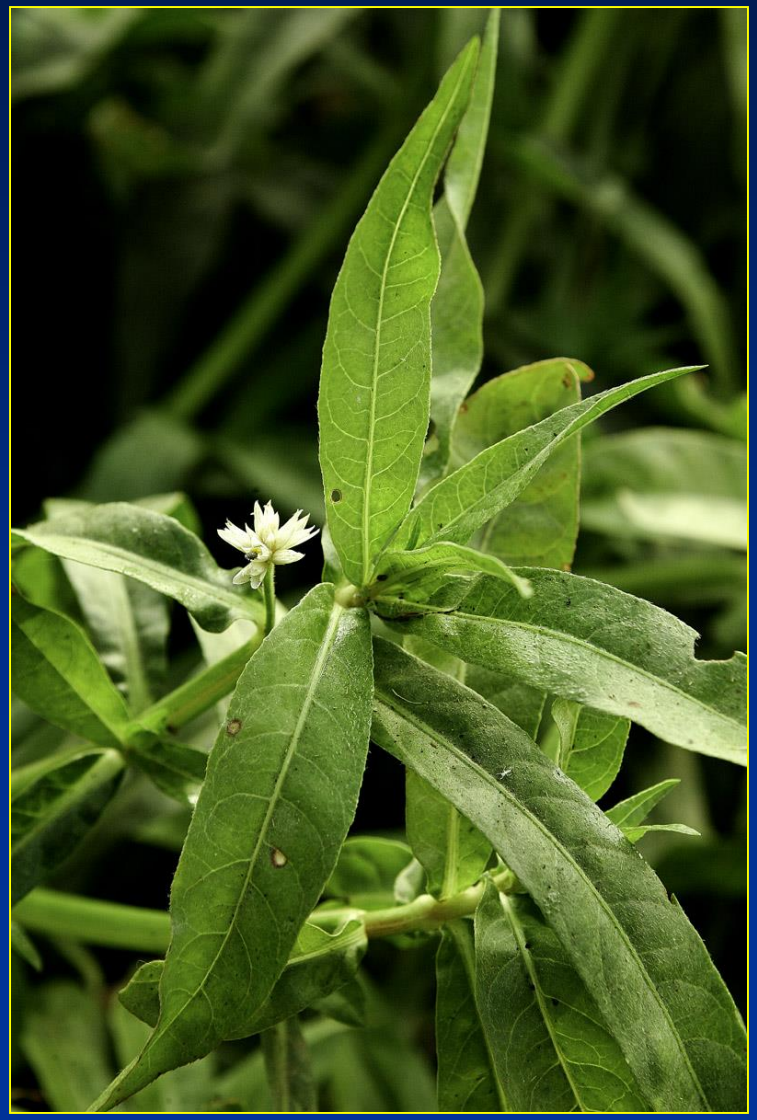
Alligatorweed, *Alternanthera philoxeroides*

- Non-native
- Rare at present
- Under eradication
- Extremely hard to kill
- ***Leaves opposite***
- **White** flowers

Found for the first time in Northern California 2017!

Aquatic Weed ID

Alligatorweed, *Alternanthera philoxeroides*

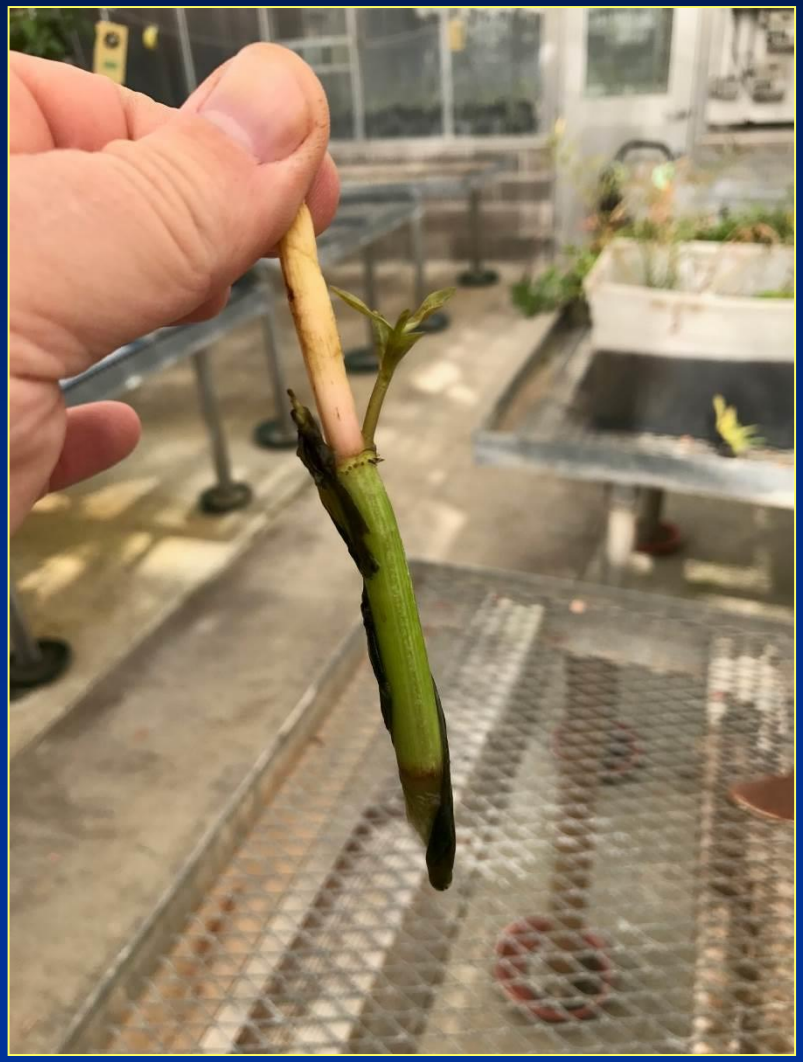


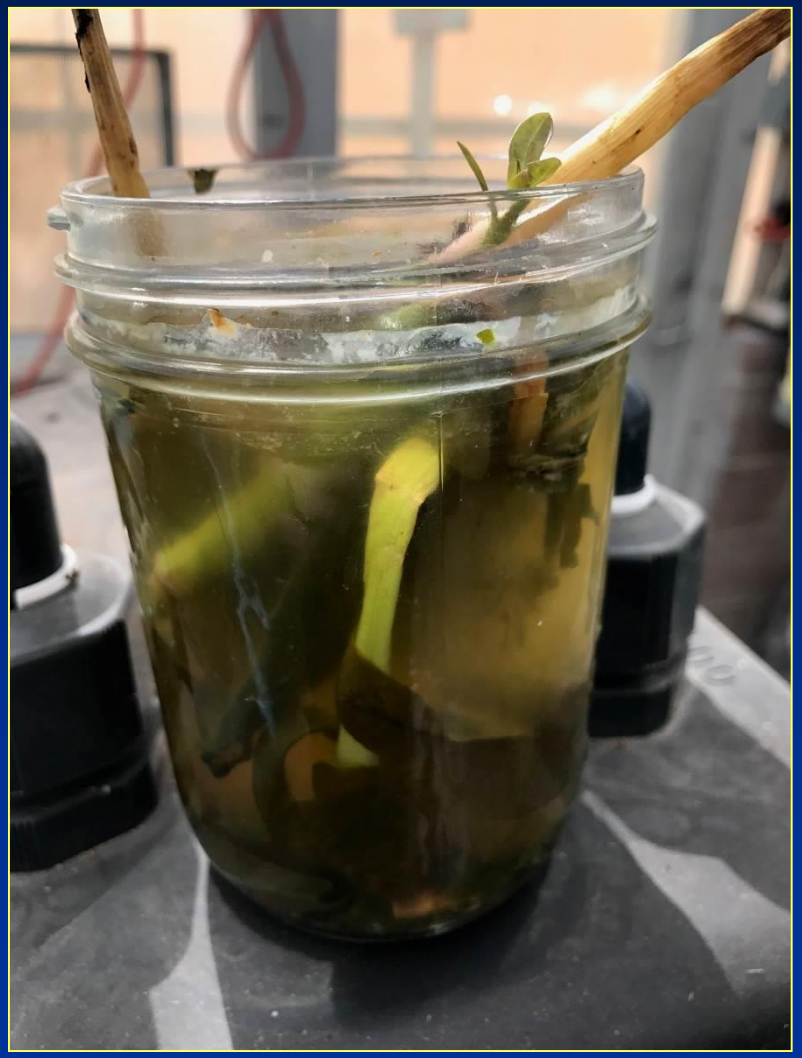
Aquatic Weed ID

Alligatorweed, *Alternathera philoxeroides*

Aquatic Weed ID

Alligatorweed, *Alternathera philoxeroides*





Aquatic Weed ID

Alligatorweed, *Alternathera philoxeroides*

Aquatic Weed ID

Water Hyacinth, *Eichornia crassipes*

Aquatic Weed ID

Water Hyacinth, *Eichornia crassipes*

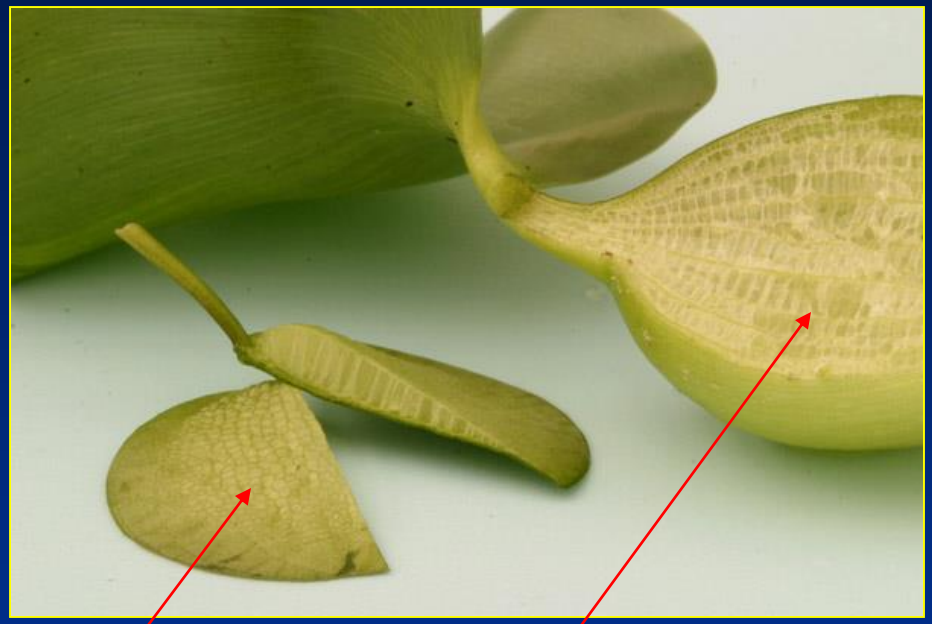
Aquatic Weed ID

Smooth Frogbit, *Limnobium laevigatum*

- Similar leaf outline to hyacinth, but plant generally smaller
- Most leaves are thickened or keeled, and with crisp, spongy-foamy layer that provides floatation
- In hyacinth, floatation is in stems

Aquatic Weed ID

Smooth Frogbit, *Limnobium laevigatum*



spongeplant

hyacinth

Aquatic Weed ID

Smooth Frogbit, *Limnobium laevigatum*

Aquatic Weed ID

Smooth Frogbit, *Limnobium laevigatum*

Giant Salvinia, *Salvinia molesta*

Giant Salvinia can form dense populations in water storage and delivery systems. Heavy infestations slow water movement, destroy pumps, kill fish and encourage mosquito populations.

Aquatic Weed ID

Salt Cedar, *Tamarix* sp.

Aquatic Weed ID

Salt Cedar, *Tamarix* sp.

Aquatic Weed ID

Giant Reed, *Arundo donax*

Aquatic Weed ID

Giant Reed, *Arundo donax*

Purple Loosestrife, *Lythrum salicaria*

CDFA B-RATED, Sec. 4500 Noxious Weed

Purple Loosestrife, *Lythrum salicaria*

CDFA B-RATED

Epilobium sp. *Lythrum salicaria*

Epilobium sp., Willow Herb, NATIVE

Lythrum salicaria, Purple Loosestrife

Epilobium sp.

Lythrum salicaria

Aquatic Weed ID

Yellowflag Iris, *Iris pseudacorus*

Aquatic Weed ID

Yellowflag Iris, *Iris pseudacorus*

Aquatic Weed ID

Yellowflag Iris, *Iris pseudacorus*

Aquatic Weed ID

Scarlet Wisteria, *Sesbania punicea*

Control Methods

Control Efforts

Mechanical Harvesters

Control Efforts

Fragmentation

Control Efforts

Control Efforts

Control Efforts

Control Efforts

Control Efforts

Control Efforts

Biological Control

Control Efforts

Biological Control, Leaf-eating Beetle (*Galerucella*, sp.)

Adult

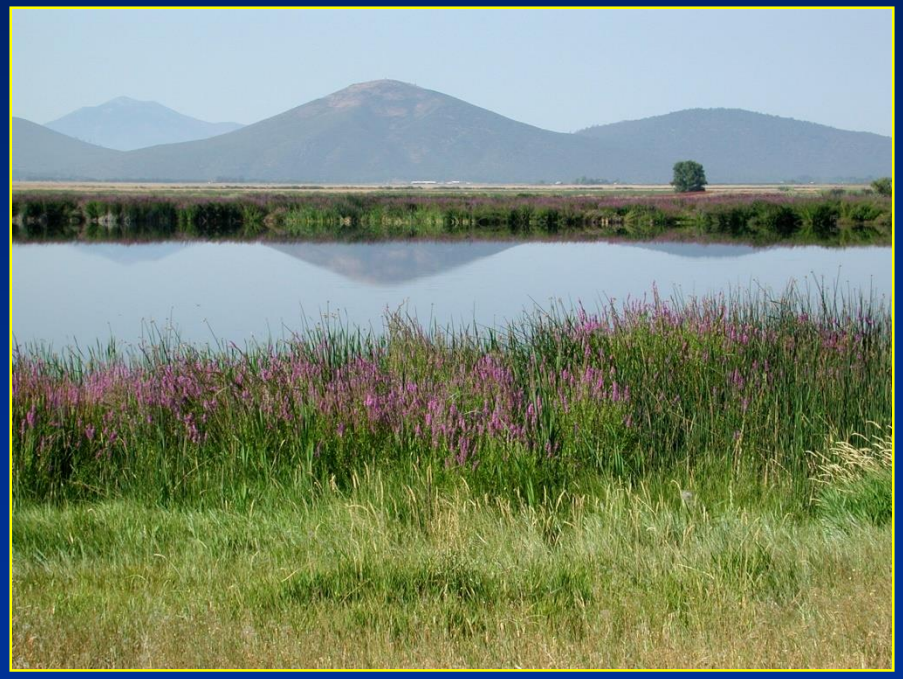
Larva

Control Efforts

Plants skeletonized by Leaf-eating Beetle (*Galerucella*, sp.)

Control Efforts

Biological Control Agents Established in Shasta County



August, 2002

August, 2004

Control Efforts

Biological control agent collection.

Control Efforts

Biological control agent collection.

Control Efforts

Other Biological Control Agents

Root-boring Weevil,
Hylobius transversovittatus

Seedhead Weevil,
Nanophyes marmoratus

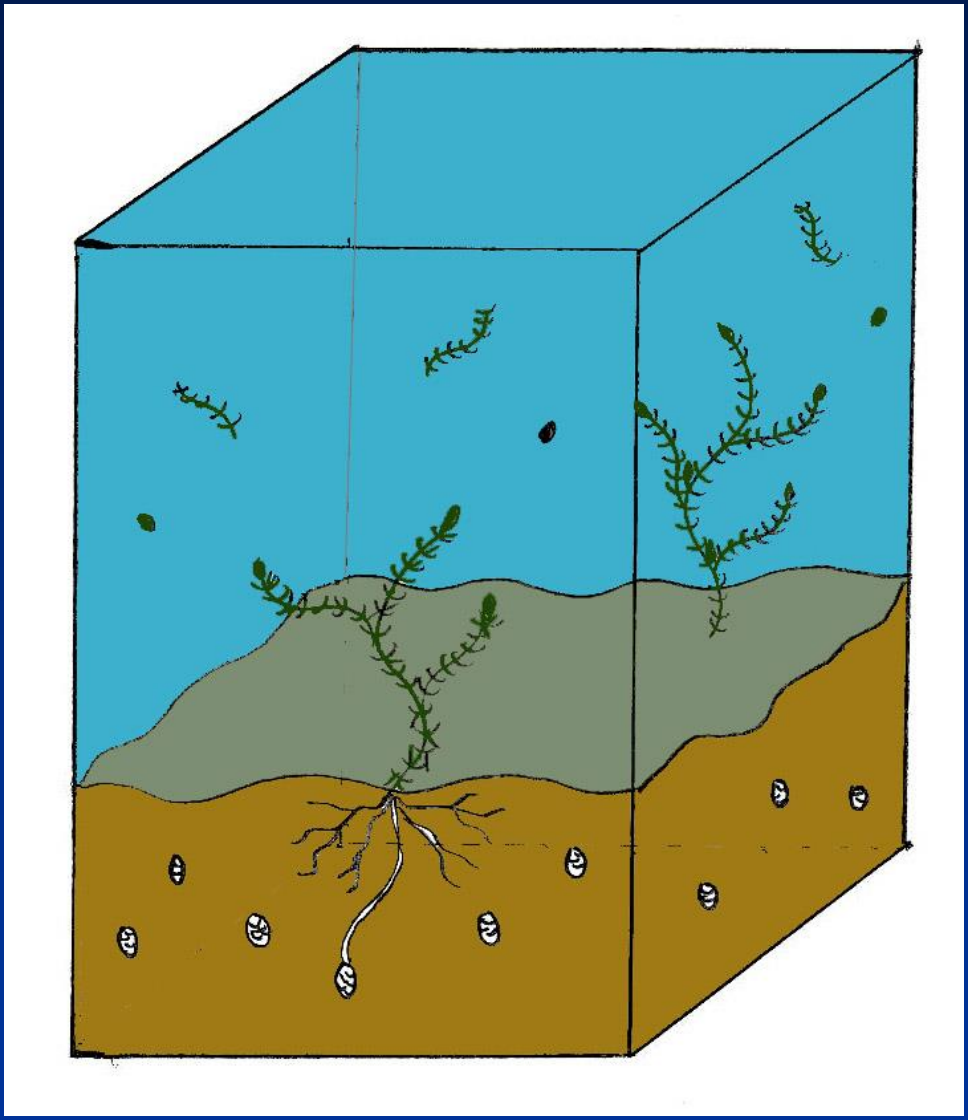
Control Efforts

Chemical Control

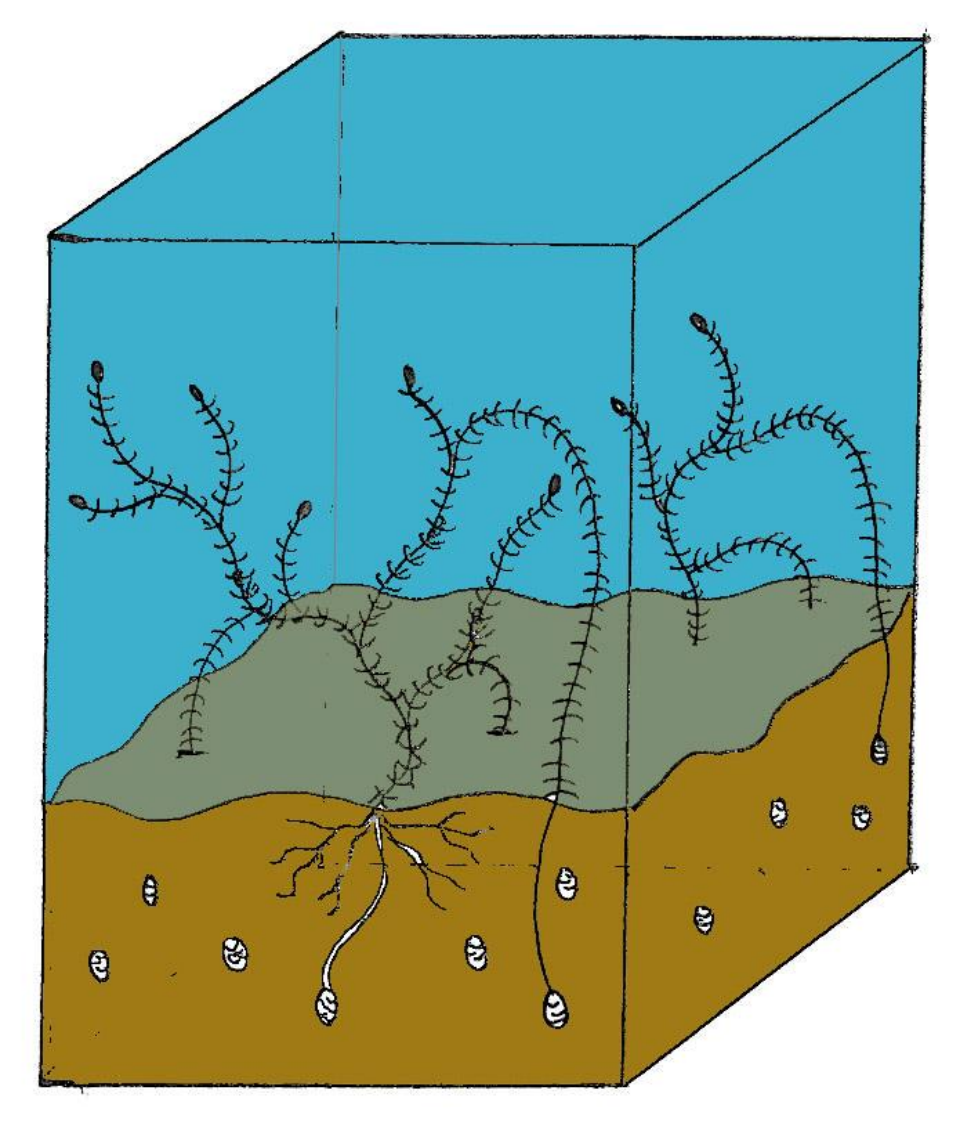
Chemical Control

Chemical Control

Tubers, turions and fragments



Chemical Control



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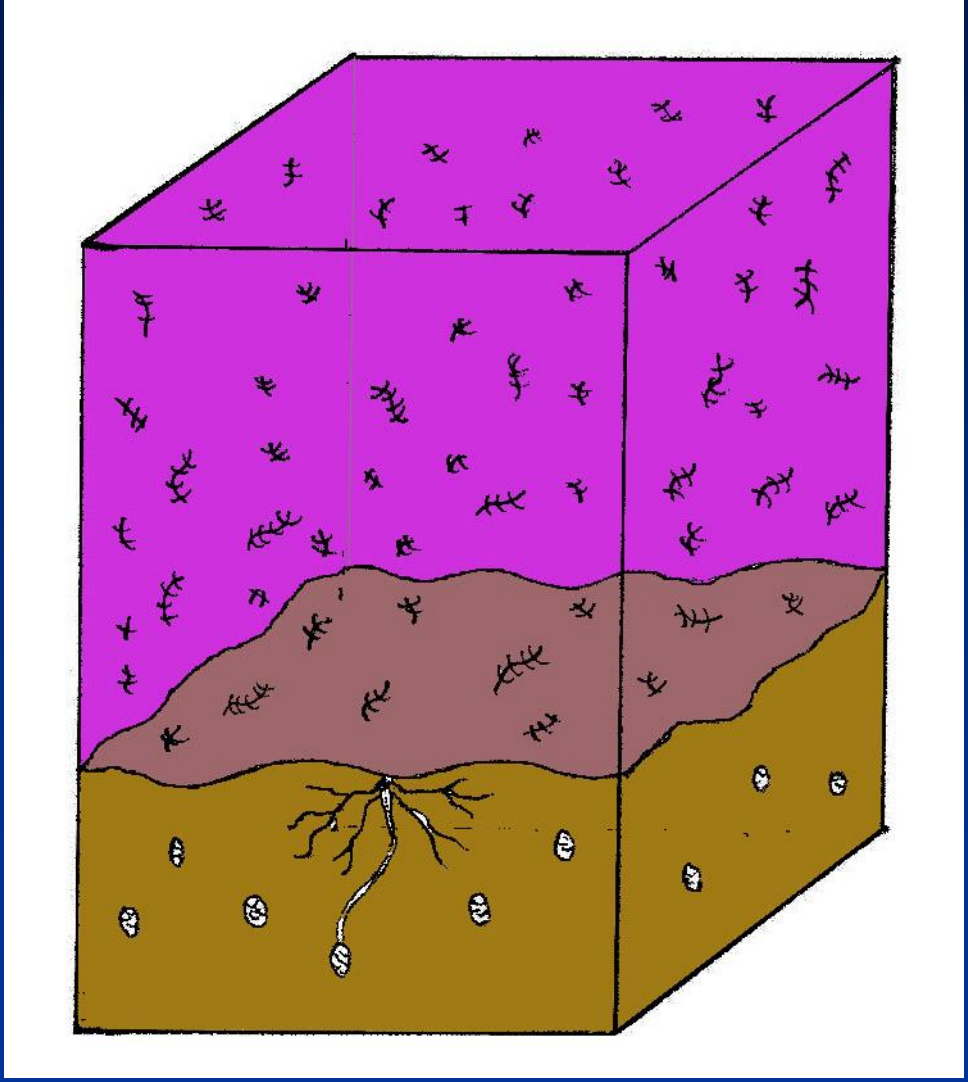

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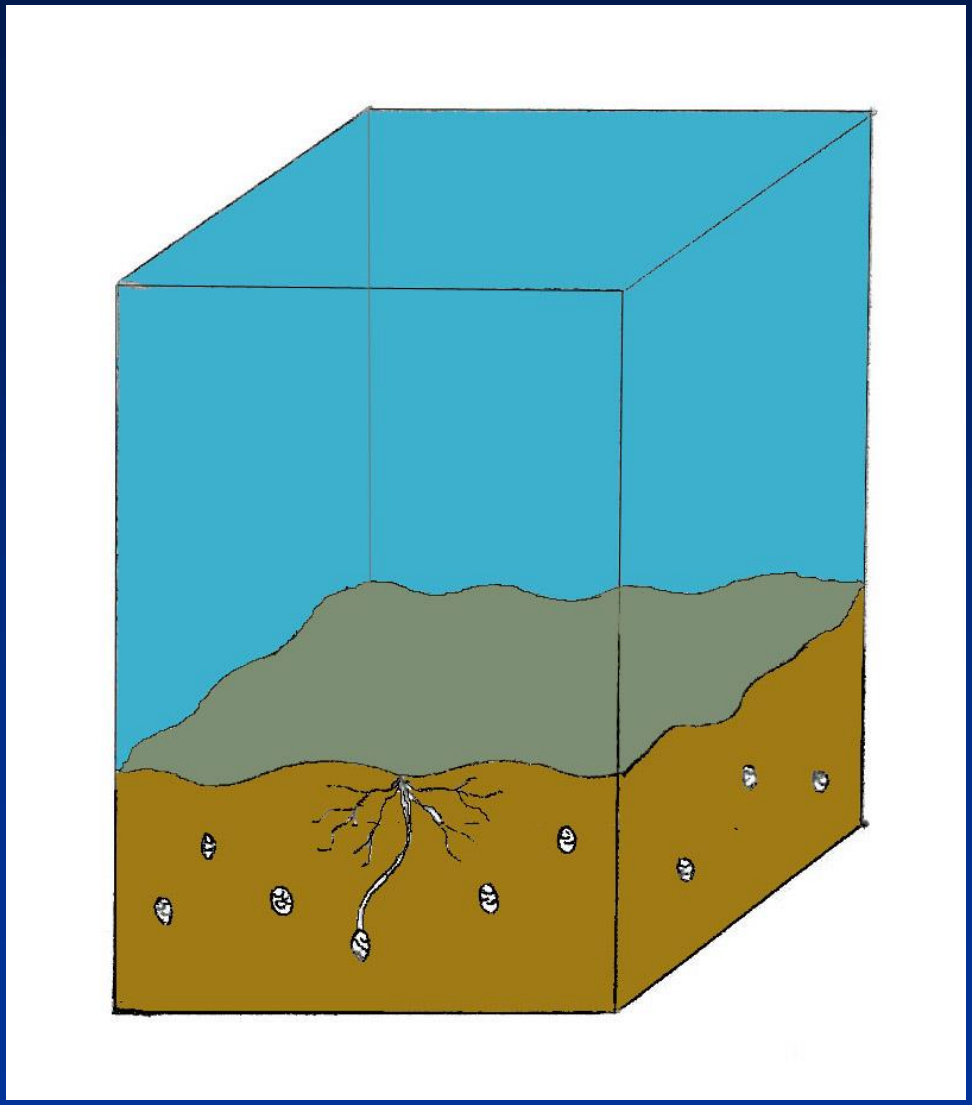

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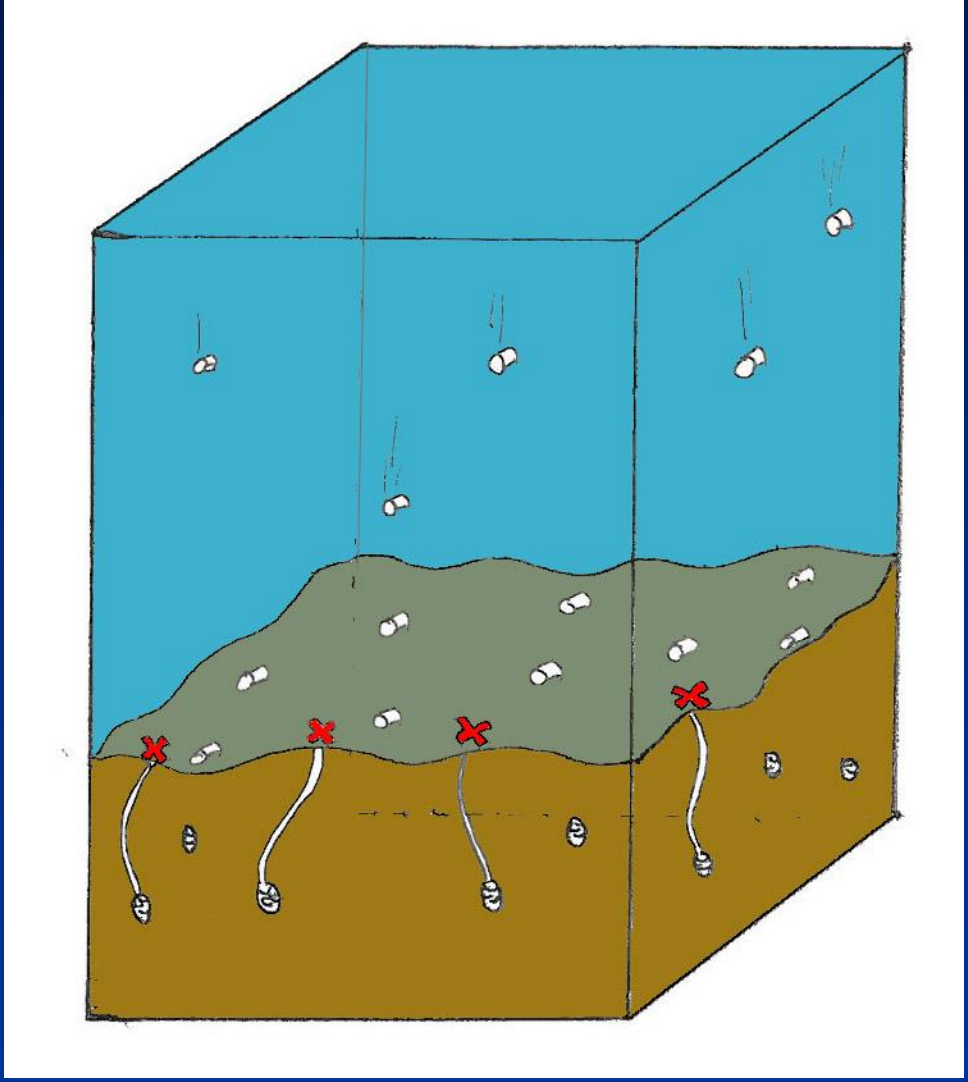

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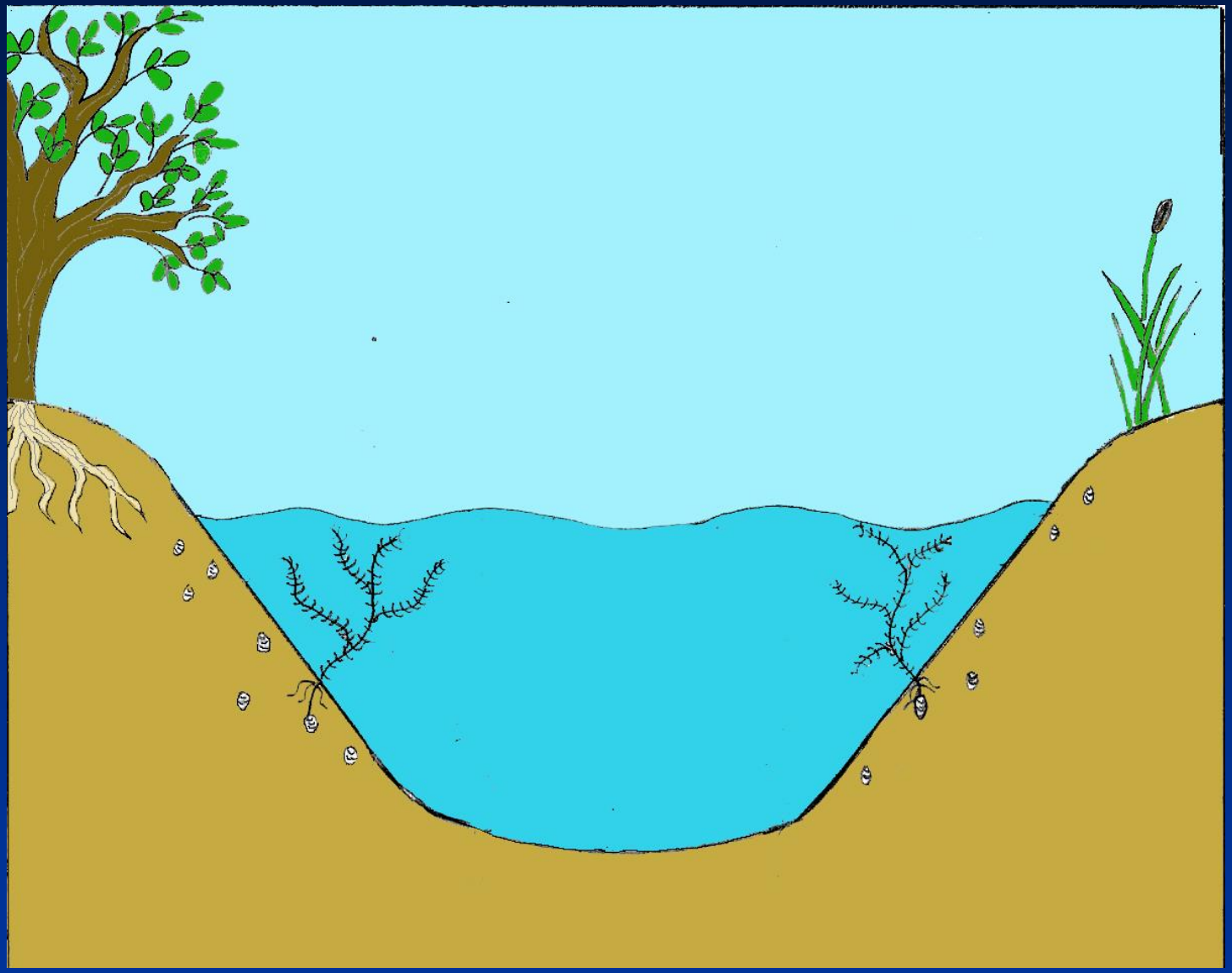
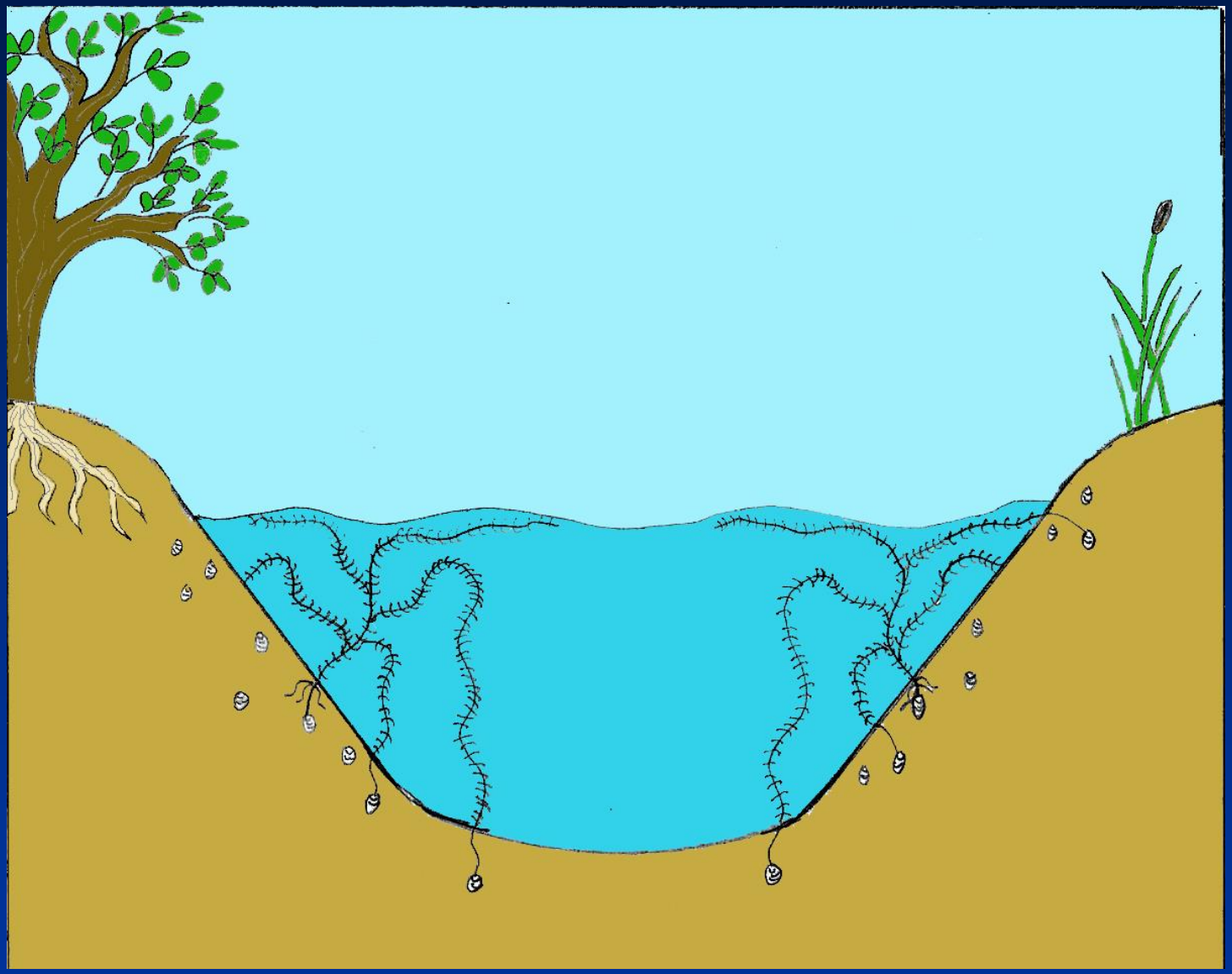
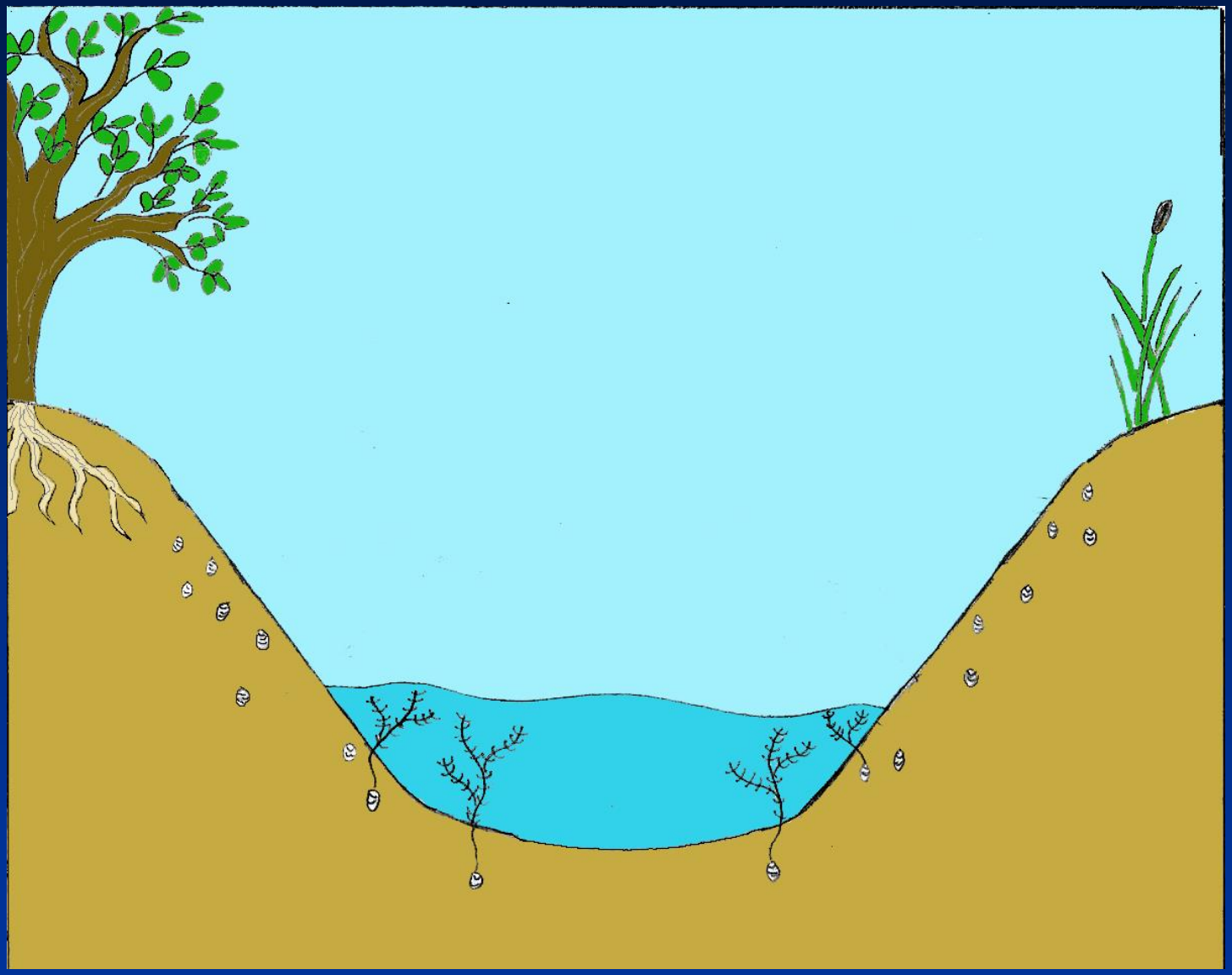


Tuber Production



Low Water



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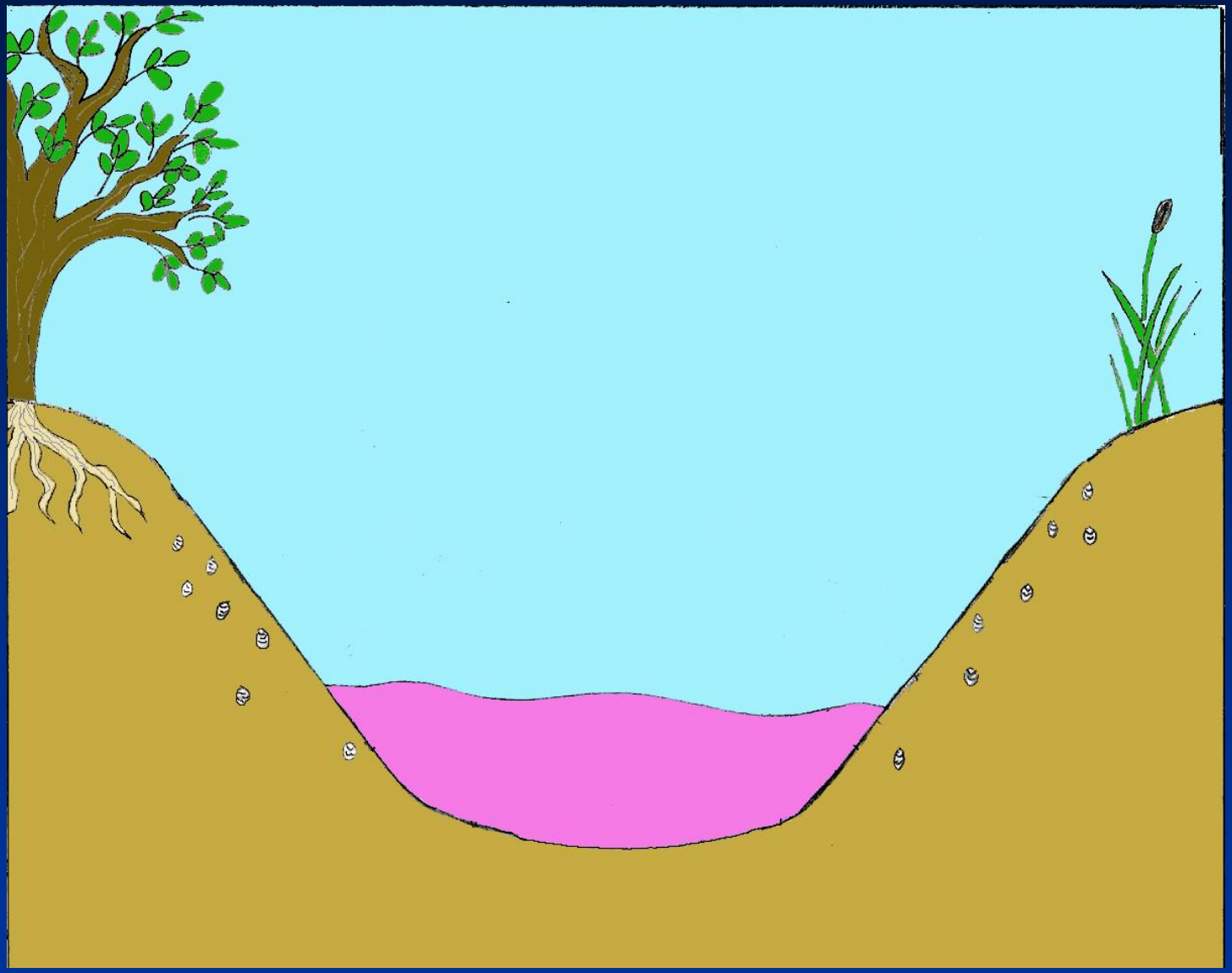
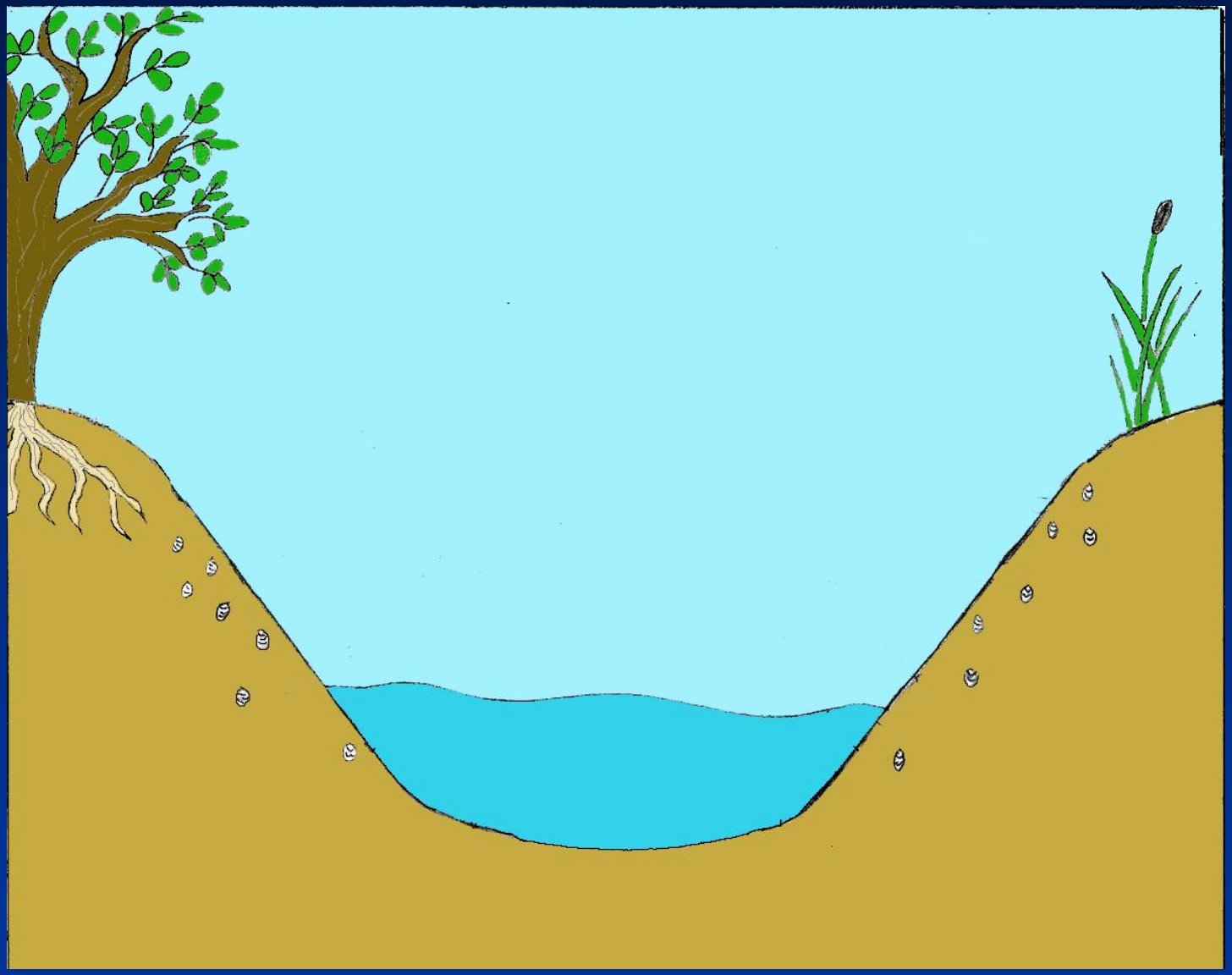
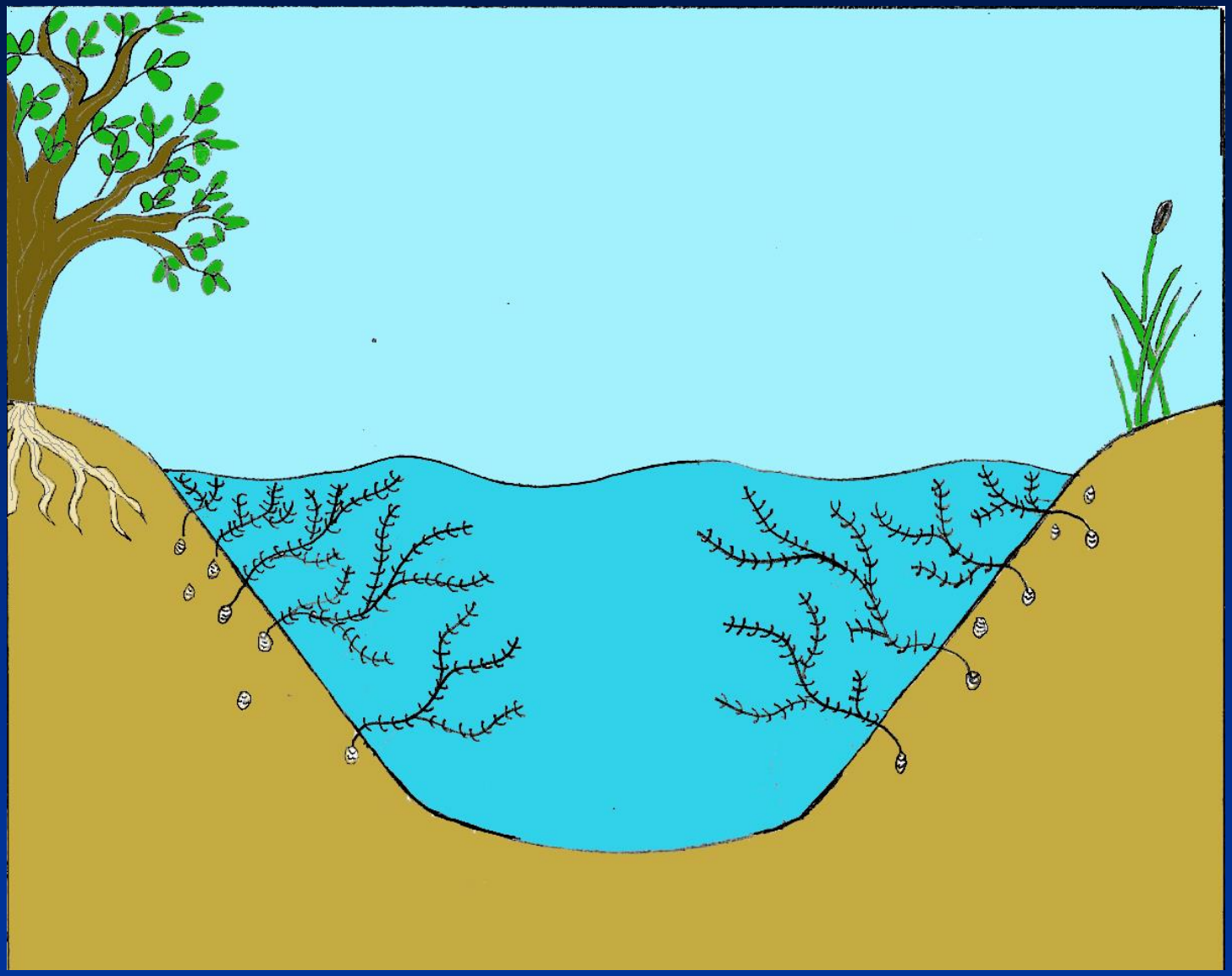


Reduce Tuber Bank



Full Pool
Protected Tubers Sprout



Chemical Control

Chemical Control

NPDES

- Talent Irrigation District.
- US EPA Memorandum “Interpretive Statement on Application of Pesticides to Waters of the United States in Compliance with FIFRA.
- CDFA continuing water monitoring under NPDES permit.

Thank you