



**AP 7 - Biodiversity, Bioinformatics,  
and Training Associate Program**

Seasons at Cook College - Rutgers



# An integral part of the Central Asia ICBG program

## Dissemination

### (Training and Publication)

Spreading and sharing knowledge,  
using and publishing the results

## Documentation (Bioinformatics)

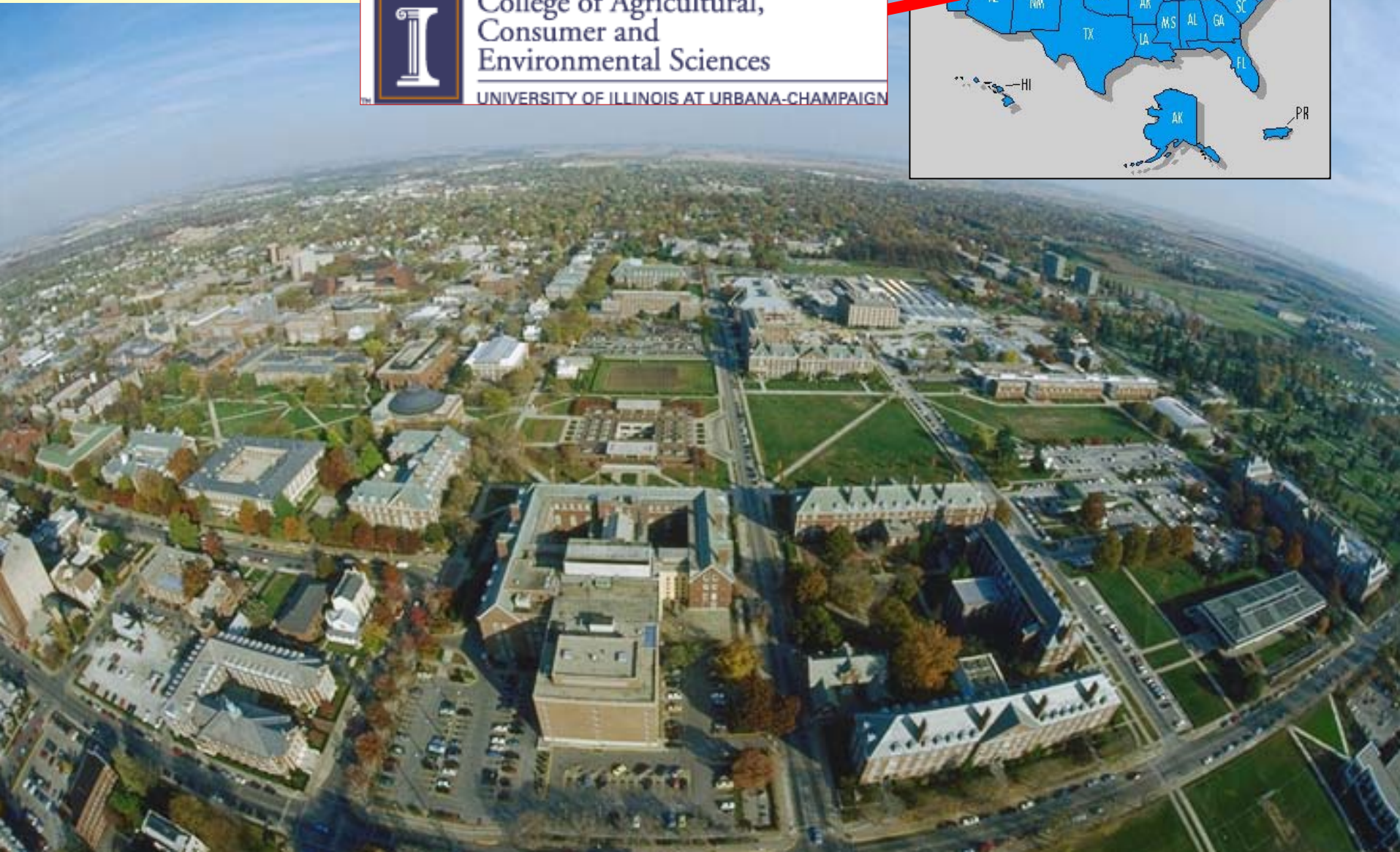
Collections, samples, lab results,  
evaluation

# *Training subprogram*

Training program funded by  
Rutgers University and  
University of Illinois  
Scientific expertise exchange



# Our U.S. Partner in the Training Program: University of Illinois at Urbana-Champaign



# Training Components

Providing tools and knowledge in an international collaboration  
3 summer courses in Central Asia  
Undergraduate student exchange  
Graduate student training  
Faculty exchange/visiting scientists  
Database training



# Summer courses in Central Asia

Participants: faculty, students, staff, naturalists, government groups, environmentalists, other organizations, etc.

2005: Biodiversity documentation (Field methods)

2006: Medicinal plants and value-added agriculture

2007: Conservation and Biodiversity documentation  
(Evaluation)

# Sharing results, and the next step...

Scientific papers and collaborations in diverse areas.

Outreach programs - conservation, natural products, biodocumentation.

Identify regions or ecological areas with special plants as aid in conservation and restoration of habitats in Central Asia.

Taxonomic/ecological database on the internet.

# *Biodiversity and Bioinformatics* *subprogram*



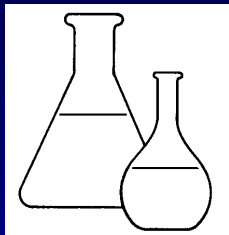
FIELD

No results of this project will be scientifically useful unless we know which organism it came from, which fungus, which soil sample, or which plant.

Linking sample and test results is a crucial step.

To help with this, we will use a large computer database.

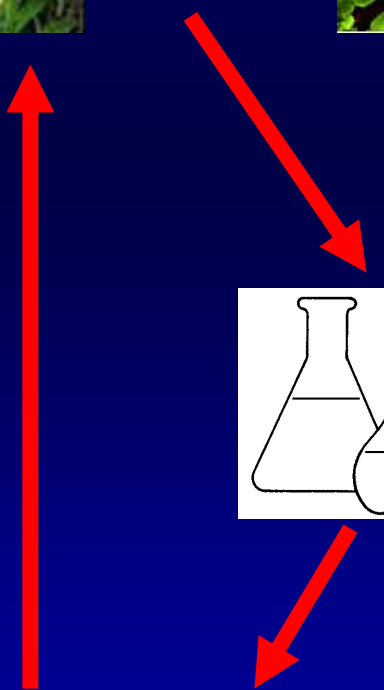
Database Manager:  
Dr. Mariusz Tadych, Rutgers University



LAB

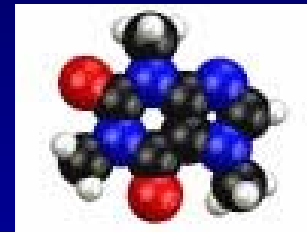
Positive/Negative?

RESULTS



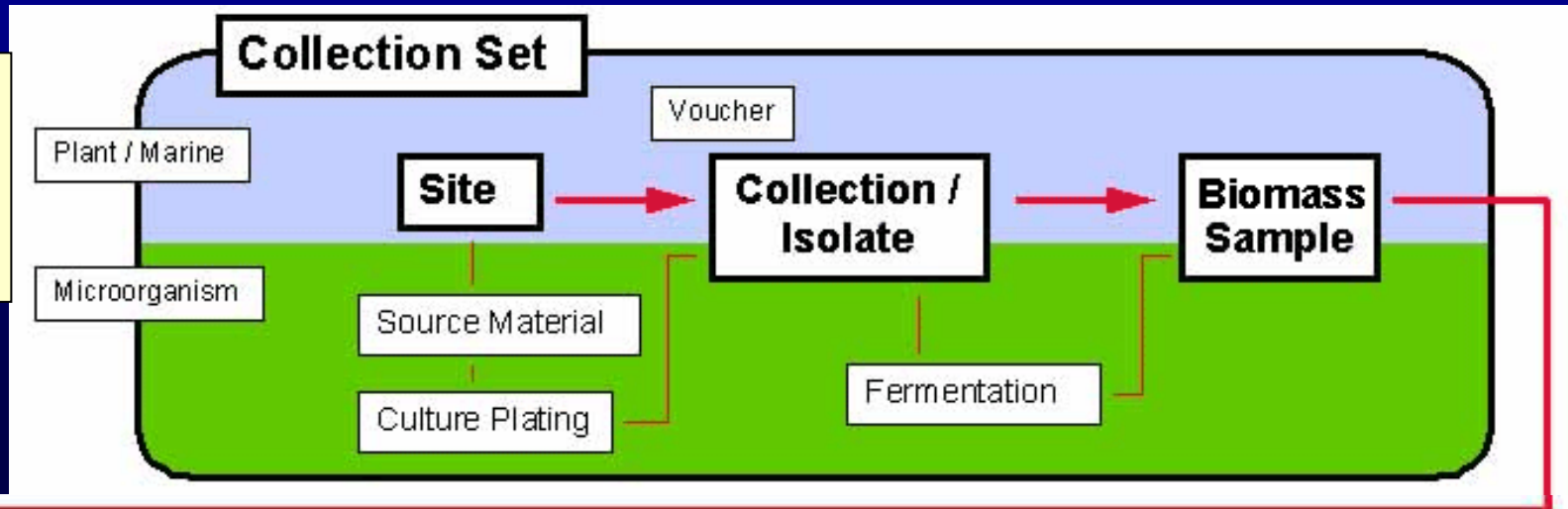
# Plan of Work

1. **Ecological Diversity:** Identify regions with high natural diversity, collect samples in the field
2. **Bioprospecting and Biodiversity:** Evaluate properties of sampled organisms
3. **Bioinformatics:** Develop biodiversity and bioprospecting relational database - **NAPIS** (*Natural Products Information System*)
4. **Conservation:** Identify areas with high biodiversity and organisms with potential as new drugs or crops.



# NAPIS ® Technical Detail

NAPIS  
Lite  
(field)



## Chemistry

Extract

Fraction

Purification

Compounds

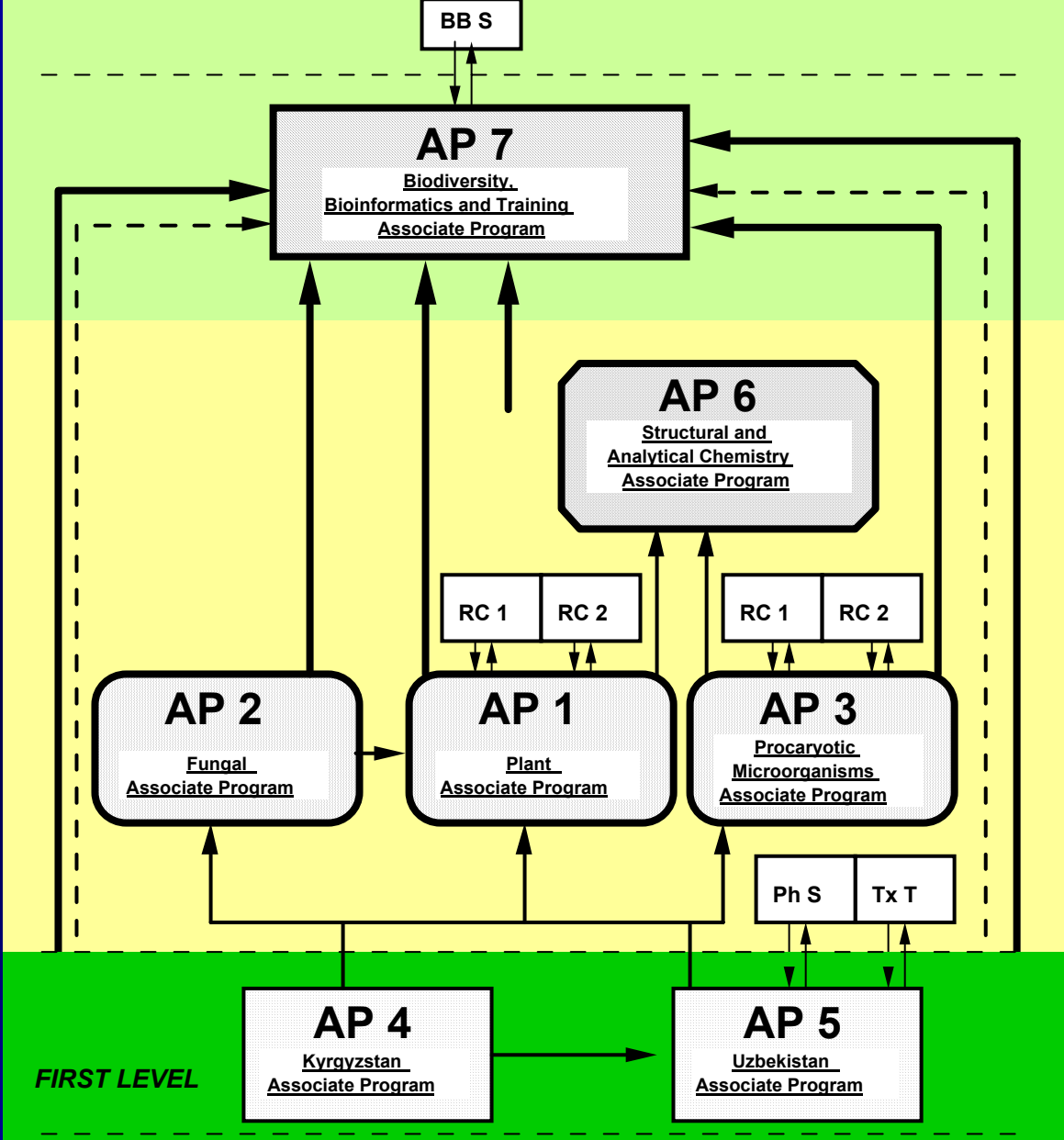
Analytical

Bioassay

Library

NAPIS Chemistry (lab)

Flow of samples and data within ICBG - Central Asia and its component programs.



- RC 1 - research component or subprogram
- sample and data flow
- biodiversity samples and data
- data flow

# Site Data Record

**Terrestrial Site Data** [Window Title Bar]

File Edit Record Help

← [Print] [Magnify] [Zoom] [Navigation] [Refresh] [Collection]

Site ID:

Date:  [Set]

Region:

Country:

Entity:

Locale:

Administration:

Is Form Complete?  Yes  No

Geographic Position

Latitude:  [Set]

Longitude:

Datum:

Habitat:  [Set]


Collectors:  [Set]

Temperature (C):  Season:

Elevation (M):  Aspect:

Site Note:

Entered by:  Last modified by:  Completed by:



# Plant Data Record

**Terrestrial Collection Data Record**

File Edit Record Help

← [Print] [Find] [Zoom] [Back] [Forward] [Refresh] [Site] [Chemistry]

Taxonomy Biology/Ecology Sample Voucher Ethnobotany Control Photos

Collection ID: SMITH0201

Kingdom: PLANTAE

Phylum: CONIFEROPHYTA

Class: TAXOPSIDA

Order: TAXALES

Family: TAXACEAE

Genus: TAXUS Species: BREVIFOLIA Variant:

Determined By: Stan Scher Authority: NUTT.

Determination Date: 2/14/2001 [Set] Variant Authority:

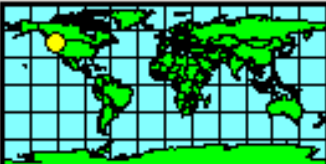

Common Name: PACIFIC YEWE Morphology: Tree

Taxonomy Note: Has fruiting bodies, picture shows bark

Is Taxonomy Complete?  Yes  No

Taxonomy Checked by:

[Save Taxonomy] [Other ID's]



# Photo Data Record

**Terrestrial Collection Data Record**

File Edit Record Help

Site Chemistry

Taxonomy Biology/Ecology Sample Voucher Ethnobotany Control Photos

Collection ID: SMITH0201

Fit picture in frame Add Image

Select File (double click a row to display image)

Image File	Photographer
P4.jpg	Tom Petra
P4s.jpg	


Meta data

Nikon F4, 50mm macro, Kodachrome 25

C:\Program Files\Napis Enterprise\Napis Server\Photos

- Program Files
- Napis Enterprise
- Napis Server
- Photos

c: []



# Microorganism Source Material Record

**Microorganism Source Material Record**

File Edit Record Help

← [Print] [Find] [Find] [Home] [Left] [Right] [End] [Refresh] Site Isolate

Source ID:

Site ID:

Number of replicate samples:

Number remaining:

Source Type

- Soil
- Non-Soil
- Organism
- Corresponding Collection

Soil

Aerobic  Anaerobic

Color:

PANTONE NO.:

pH:

Temp (C):

Depth of sample:  Units:

Sample Handling

Container:

Status:

Storage:

Micro Source:

Micro Source Note: