

# Broadening Diversity in the Biological Sciences: Reaching Out to Underrepresented Populations

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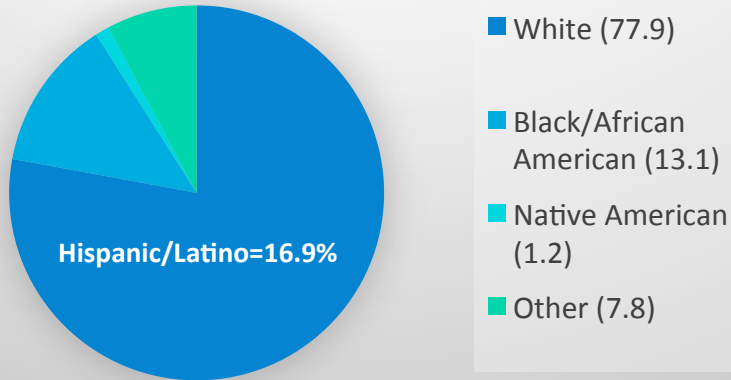
E&O Workshop  
16-17 January 2014  
Gainesville, Florida

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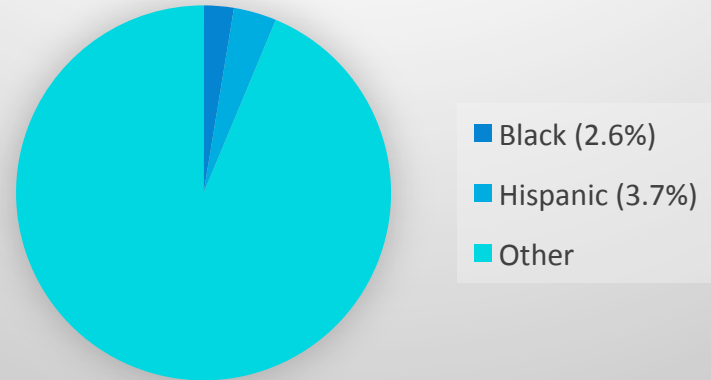
# A Few Numbers

## Population 2012 (%)



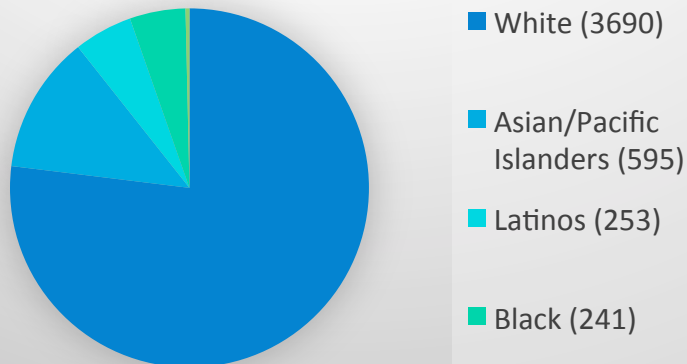
US Census Bureau: Quick Facts (<http://quickfacts.census.gov/qfd/states/00000.html>)

## New PHDs 1993-2002



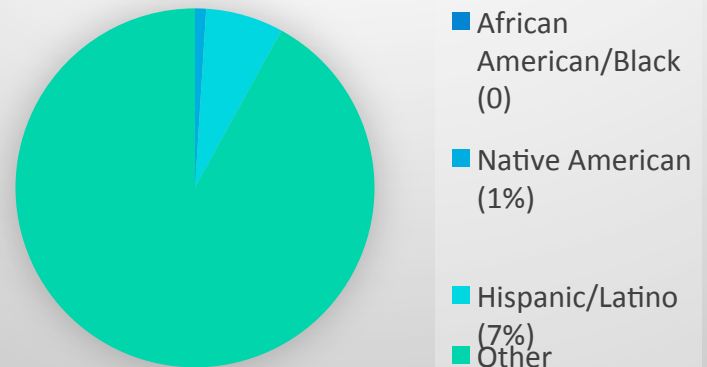
National Center for Education Statistics (<http://ccv.med.harvard.edu/diversity.htm>)

## PHDs 2008

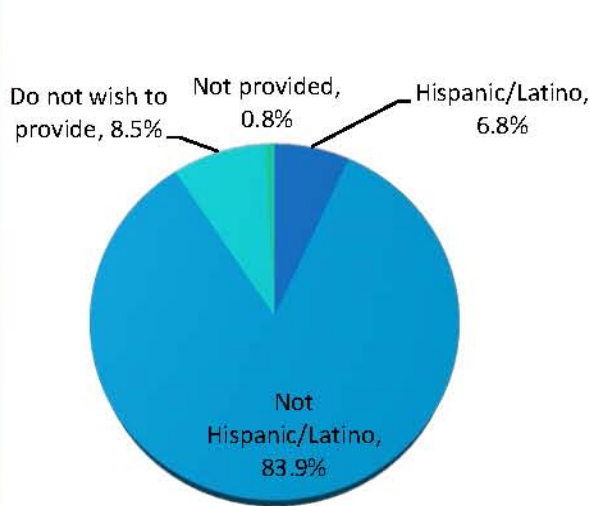


National Center for Education Statistics (<http://ccv.med.harvard.edu/diversity.htm>)

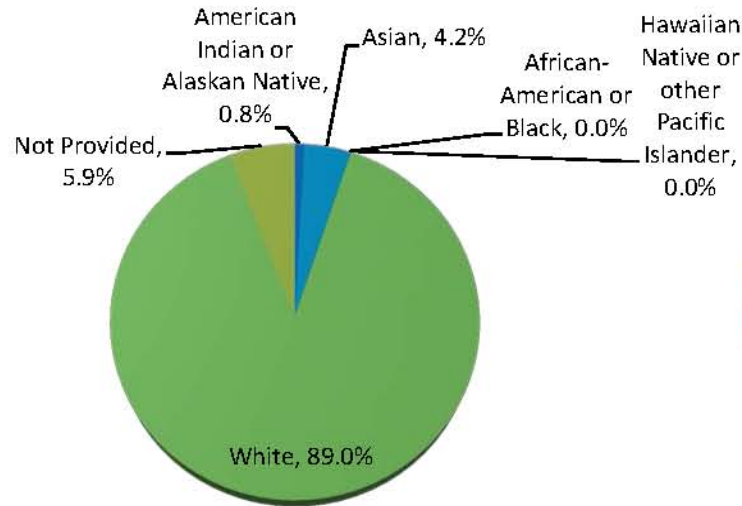
## 528 iDigBio Attendees



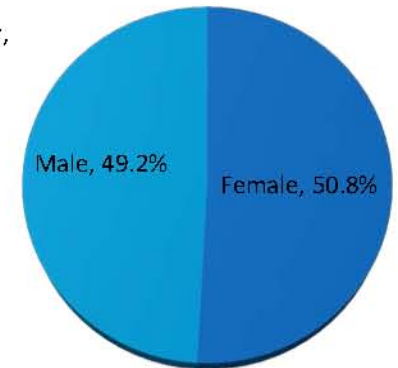
# Workshop Demographics (since 9/12)



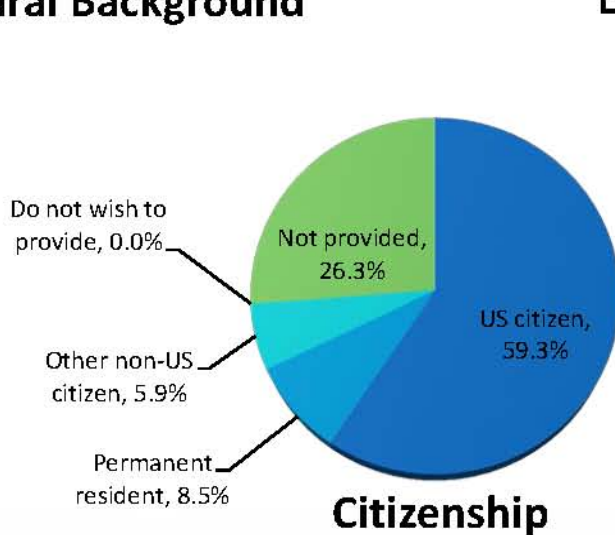
**Cultural Background**



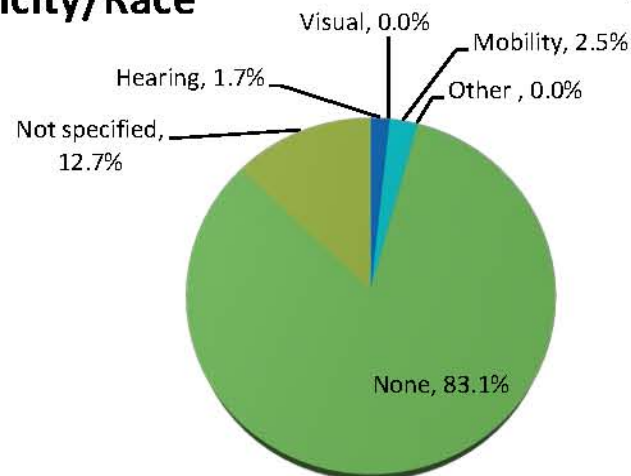
**Ethnicity/Race**



**Gender**



**Citizenship**



**Disability**

## Broadening Minority Participation in the Biological Sciences: A Workshop Focused on Careers and Graduate Study Opportunities in Biology

Space for this workshop is limited. To register, complete the [online registration form](#). Please visit the [workshop agenda](#) for more information on the day's activities. See the [workshop flyer/announcement](#).

The [University of Central Florida](#), [University of Florida](#), [Florida Museum of Natural History](#), and [iDigBio](#) are pleased to announce a free 1-day workshop for undergraduate students focusing on opportunities for careers and



graduate study in field and environmental biology, biodiversity, ecology, and evolution. The workshop is open to anyone. A primary goal is increasing minority participation in the biological sciences within such groups as African and

Black Americans, Native Americans, and individuals of Hispanic ethnicity. Registration is open to freshmen, sophomores, juniors, seniors, and recent graduates. [Click here for the agenda](#).

The workshop will be held at the University of Central Florida's [Live Oak Center](#) Saturday, February 1, 2014. Activities will begin at 10:00 a.m. with a keynote address by [Dr. Scott Edwards](#), professor of organismic and evolutionary Biology at Harvard University and division director at the National Science Foundation.



Lunch will be provided and will include a special opportunity to interact with undergraduate and graduate students, post-doctoral fellows, workshop speakers, and biology faculty from several universities. Following lunch, attendees will have the chance to explore several hands-on stations featuring a variety of scientific specimens.



### Researchers

[Browse our specimen portal](#)



### Collections Staff

[Learn how your collection can benefit from our work](#)



### Teachers & Students

[Download lesson plans about using digitized specimens](#)



# One Approach for a Solution

NSF-Funded Workshop Series

Broadening Diversity in the Biological Sciences:  
A Series of Workshops for Undergraduate and Graduate Students

1<sup>st</sup> workshop: University of Central Florida (1 Feb 1014)

- Goal: 100 students
- Selection of speakers
- Guidance on funding, course selections, opportunities
- Free food!
- Working, interactive lunch
- Hands-on activities
- Reception

## Florida Undergraduate Research Conference

FIU is the site of FURC 2014 on February 21-22. It is the largest multi-disciplinary undergraduate research conference in the State of Florida. ([REGISTER NOW](#) →)

*Over 400 students from more than 40 colleges and universities will present posters, workshops, and lectures. Recruiters from graduate schools from throughout the US will also be attending.*

39 2 49 0  
Days Hours Minutes Seconds

Abstracts Due: January 6, 2014

## Florida Undergraduate Research Conference

- Recruit
- Follow up with 2-day workshop
- 10 students shadowing FLMNH scientists

## Working on a venue in the West (Native Americans/Hispanic)

- Tentatively collaborating with Oklahoma State

## Working on a venue in the East/Northeast (African American/Black/Hispanic)

# Broadening Diversity in Biodiversity Projects

## The New York Botanical Garden Experience

### Bronx Demographics

47.3% of residents of Bronx speak English at home.

43.6% of residents speak Spanish at home (51% speak English very well, 22% speak English well, 18% speak English not well, 9% don't speak English at all).

5.4% of residents speak other Indo-European language at home (57% speak English very well, 26% speak English well, 15% speak English not well, 3% don't speak English at all).

1.6% of residents speak Asian or Pacific Island language at home (44% speak English very well, 26% speak English well, 23% speak English not well, 7% don't speak English at all).

2.1% of residents speak other language at home (64% speak English very well, 25% speak English well, 9% speak English not well, 1% don't speak English at all).

Foreign born population: 385,827 (29.0%)  
(39.5% of them are naturalized citizens)

### Bronx Educational Institutions

- Schools (k-12); 520
- City wide magnet school: Bronx High School of Science
- Bronx Community College
- Lehman College

### NYBG Programs:

On site (Children's Adventure Garden, Greenschool)

Off site: Online courses, kits, curriculum aids; also summer and out-of-school time programs





# More about Osborne Association Partnership

## Specific Activities

- Initial meeting with Osborne principals, tour of training facility (2 hrs.)
- Recruitment: High school diploma or equivalent required; some college preferred; commitment: 5 yrs. per week for 4 weeks.  
Compensation: \$7.50 per hour (up to 20 hrs. total, plus transportation stipend)
- Training course: 7 hrs. at NYBG at start of course:
  - Lectures (9 am-- noon ):
    - Introduction to Botany
    - Introduction to Scientific Collections
    - Field trip on NYBG grounds to look at plants
    - Tour of Herbarium Facility
  - Lunch break
  - Hands on training 1:30-4:30
    - Interpreting specimen labels
    - Data transcription software training
    - Internet reference training
    - Practice; proof reading, data editing training
- Work accomplished: about 3000 records transcribed; quality generally high.

# Other Ideas

Garden volunteers get credit for additional benefits by volunteering in the Herbarium

Open House events

Transcription crowd sourcing as formal educational activity

Casual visitor data transcription, in conjunction with exhibits



## Welcome to ScioTR!

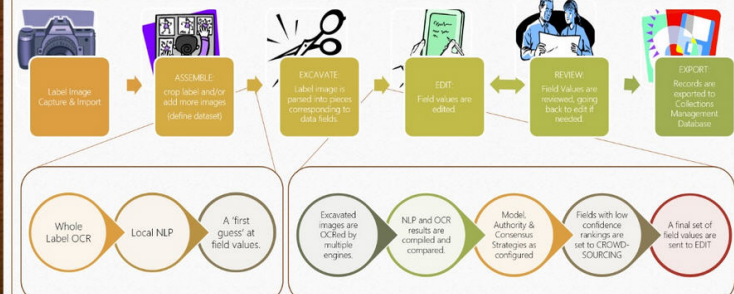
ScioTR is a new touch-enabled Windows 8 app which integrates Optical Character Recognition (OCR), Natural Language Parsing (NLP), and Machine Learning (ML) to provide an efficient workflow for capturing highly-structured data from images. The workflow illustrates how to leverage the strengths of individual technologies while simultaneously compensating for inherent weakness. Work can be partitioned across temporal and skill-set boundaries. The first version of ScioTR is expected in the Windows 8 Store in early 2014. During our testing cycle, if you would like to have some labels digitized for free, check out our 'Call for Labels'.

## ScioTR

Integrative Digitization



### ScioTR Digitization Workflow



# Discussion Topics

Obstacles and barriers?

Suggested strategies?

Recruitment strategies

- How to target?
- Where to target?

Distractions from  
competing fields or  
disciplines?



# iDigBio

Integrated Digitized Biocollections