

The University of Texas Rio Grande Valley

INTERGRATING EDUCATION FOR SUSTAINABLE DEVELOPMENT THROUGH TREE CAMPUS USA

5th Annual TRACS Summit 2017



Texas Regional Alliance for Campus Sustainability

INTEGRATING EDUCATION FOR SUSTAINABLE DEVELOPMENT THROUGH ARBOR DAY FOUNDATION TREE CAMPUS USA



Alexis Racelis, Ph.D.,
Assistant Professor School of Earth,
Environment, and Marine Sciences



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Office for Sustainability



Marianella Franklin, Assoc. AIA, LEED AP,
Chief Sustainability Officer,
UTRGV Office for Sustainability



Eva Larraga, Graphic Art Intern,
Office for Sustainability

INTRODUCTION

- Identify the advantages of including credit-based learning in campus projects versus hiring consultants
- Extrapolate and apply a plan for implementation of the Tree Campus USA process for a campus.
- Actively think and create a sustainable tree management plan for your campus, and community.
- Identify opportunities to implement additional experiential learning on campus



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EDUCATION FOR SUSTAINABLE DEVELOPMENT

ARBOR DAY FOUNDATION | TREE CAMPUS USA

- Interdisciplinary | Course Credit
- Service Learning | Hands-on Experience
- Campus as a Living Lab
- Community Engagement

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TREE CAMPUS USA STANDARDS

1. **Campus Tree Advisory Committee**
2. **Campus Tree Care Plan**
3. **Campus Tree Program with Dedicated Annual Expenditures**
4. **Arbor Day Observance**
5. **Service Learning Projects**

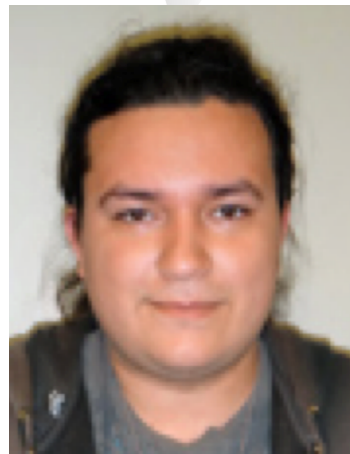


INITIAL STEP



Dr. Alexis Racelis

- Identifying a Faculty Champion



Jorge Cantu

- Identifying a Graduate Student

DEVELOPING A COURSE

- GRA 2 year Program
- Campus Zoning
- Inventory Outline
- Course Outline



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COLLABORATIONS

- Institutional Support
- Facilities Planning & Operations
- Office for Sustainability
- City and Regional Foresters
- GIS Specialist



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DEVELOPING A PROPOSAL

- Objective
- Benefits
- SLO's
- Community Impact



- Identifying Needs
- Departmental Support
- Community Support
- Gifts in Kind

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ESTABLISHING A COMMITTEE

Faculty



Dr. Alex Racelis
*Assistant Professor of
Biology Chair*



**Dr. Christopher
Gabler**
*Assistant professor of
school of Earth, Env.,
& Marine Science*

Staff



**Ms. Marianella
Franklin**
*Chief Sustainability
Officer*



Oscar Villarreal
*Director of Facilities
Operations
Edinburg Campus*



**Abraham
Hernandez**
*Director Facilities
Operations Brownsville
Campus*



Carlos Chavez
*Assist. Director for
Facilities Programs &*

Students



Mr. Jorge Cantu
*Graduate Research
Assistant*



Mr. Carlos Nunez
*Undergraduate
Research Assistant*

Community



Bill Green
*Regional Urban
Forester for South
Texas-TRGV Coastal
Bord*



Edward Kuprel
Edinburg City Forester



Clifford Hawkins
McAllen Urban Forester



Roy Reyes
*Brownsville City
Forester*

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Goal: Develop a course in the context of this sustainability objective



Declining capacity in food, agriculture, natural resources and related sciences (APLU, 2009) requires radical transformation of undergraduate education (NAP Press 2011).



Systems-based approach to teaching

- Diversity of elements within any system is often associated with system resilience
- Diversity of elements within classrooms is increasingly rare
 - Inquiry Based/Problem Based Instruction
 - Experiential Learning
 - Community-Engaged Scholarship.



To inspire and prepare skilled and competitive professionals who can help address our pressing socio-environmental problems through **ecological literacy.**

- (1) look at the world with an ecological lens, recognizing connections of elements within a system based on a deep understanding of ecological concepts
- (2) identify and explain specific patterns or phenomenon resulting from these connections and interactions with a system, and
- (3) have both the skills and motivation to critically evaluate the implications of such patterns, in the context of solving real world ecological problems.

STUDENT RECRUITMENT COURSE MARKETING

Help UTPA qualify for

**Interdisciplinary
Service Learning
Project**

Students will be **trained by local and state foresters** to collect data for a tree management plan. **At least a 4 hour/week** commitment (Mondays 8am-12pm)

Biology and Environmental Science Students can **GET CREDIT** for their learning and service! Enroll in **BIOL 4201 or ENSC 4300**

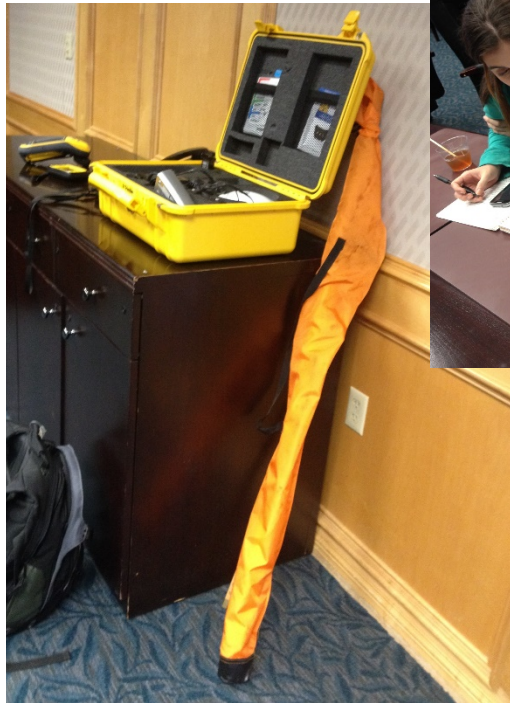
For enrollment contact **Dr. Alexis Racelis: racelisae@utpa.edu**



Training begins
August 25th

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EQUIPMENT PURCHASE AND TRAINING



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Student Training



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COURSE/INVENTORY BEGINS



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COURSE/INVENTORY BEGINS



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COURSE/INVENTORY BEGINS



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Sequestered

CO: 29,000g
O₃: 510,000g
NO₂: 29,000g
PM10: 380,000g
SO₂: 27,000g
PM2.5: 18,000g

Value

CO: \$35.00
O₃: \$700.00
NO₂: \$14.00
PM10: \$3,000
SO₂: \$3.00
PM2.5: \$900.00

Pollution Sequestration



CO₂ Sequestered

600 Metric Tons in Total
Removes 120 cars off the road
Annually, 36 Metric Tons
Removes 7.5 cars
Structural Tree Value
Valued at \$5,734,729

Shade for Cooling

25,000 Kwh
28 months of power
\$3,600

Rainwater Retention

750 m³/year
198,000 gallons/year
\$1,800

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UTRGV URBAN FORESTRY TEAM



- **32 students**
- **72 SCH**
- **1 MS Thesis**
- Community of Learning
- Community Engagement
- Local and national recognition
- Tree Campus USA designation

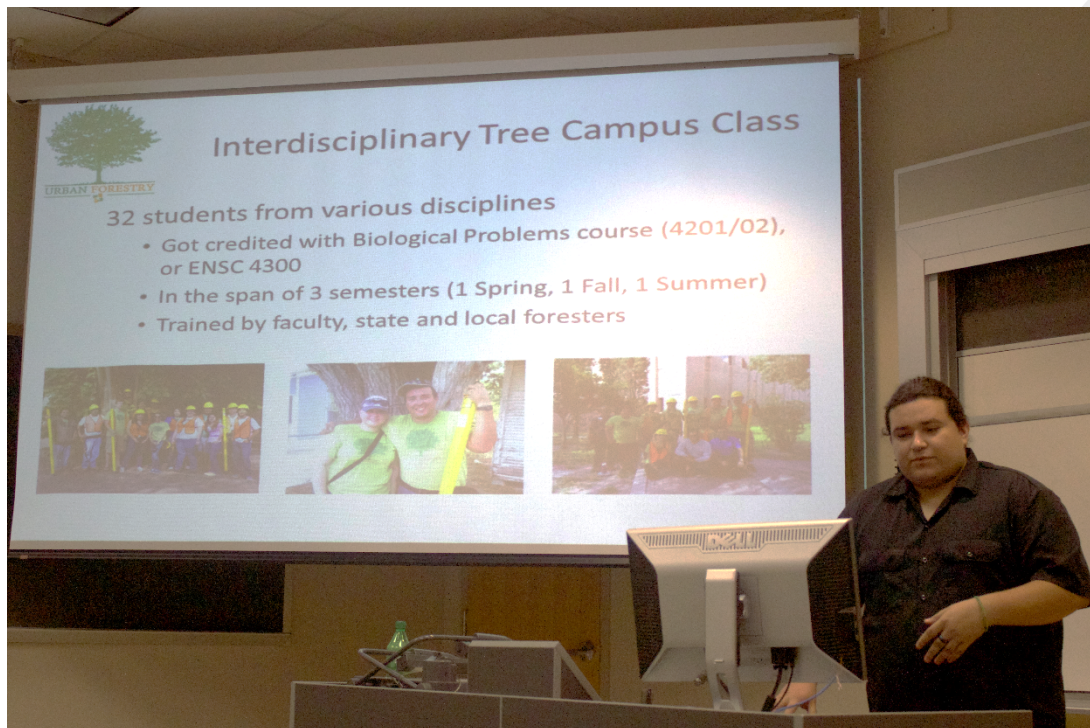
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THE MONITOR



Courtesy photo
Dr. Alexis Racelis, left, and graduate student George Centu worked with urban forestry teams of students over three semesters to inventory all trees on the Edinburg campus as part of the process to gain the Tree Campus USA designation.

UTRGV Edinburg campus garners Tree Campus USA designation

SPECIAL TO THE MONITOR

The Arbor Day Foundation has recognized the Edinburg campus of The University of Texas Rio Grande Valley as a 2014 Tree Campus USA university for its commitment to effective urban forest management and engag-

our campus forestry. It is exciting to see such a strong involvement by our students in this worthy cause and recognizing the importance of our urban forestry," said Martin Bayler, UTRGV executive vice president for Finance and Administration and UTPA vice

to take the tree health and dimensional data of nearly all of the more than 2,000 trees on campus.

Student participants were credited with a biology or environmental science course, each designed to foster student engagement, education

This designation also signals the recognition by campus management of the many benefits of trees, as well as their needs in terms of maintenance," Racelis said.

In his notification of the designation, Matt Harris, chief executive of the Arbor Day Foundation,

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Students practiced meaningful **teamwork** , **effective communication**, and **new technical skills**.

Students were engaged, curious, prideful, and dedicated to completing the tasks. Understood and appreciated **connection of their work to campus sustainability**.

Students expressed a **greater sense of stewardship** for urban trees

- proper tree pruning and management
- benefits of trees in urban ecosystems .

Fostered community engagement and collaboration

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TREE CARE MANAGEMENT PLAN



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ARBOR DAY INFO FLYER



UTRGV

Thermal Value Saved
by cooling
25,000kwh **\$2,600**

UTRGV- Edinburg
Total Trees Tagged
1,971



TREE CAMPUS USA from coast to coast

📍 = Location of a
Tree Campus USA
college or university



3,162
Student Service
Learning hours

Rainwater Retention
198,000 gallons/yr
\$1,800

\$493,261
Tree planting, care and maintenance

Recertification Rate
100%



State with most
Tree Campuses:
TEXAS

250
Trees Planted

\$5,735,000
Value Of Trees
UTRGV Edinburg



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Learn more at www.utrgv.edu/sustainability

CAMPUS TREE ADVISORY COMMITTEE STRATEGIC PLANNING

Quarterly Meetings

December	March	June	September
<ul style="list-style-type: none">• TC-USA Report• FESTIBA• MLK• Coastal Expo• Trainings	<ul style="list-style-type: none">• UTRGV Earth Fest• McAllen Earth Fest• Edinburg Earth Fest• McAllen Arbor Day• Tour de Trees	<ul style="list-style-type: none">• Prepare Course and Recruitment• Training and development• Conferences	<ul style="list-style-type: none">• HESTEC• Campus Sustainability Day• UTRGV Arbor Day

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TREE PLANTINGS | CAMPUS

ARBOR DAY



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OTHER SERVICE LEARNING OPPORTUNITIES

- Tree Plantings
- Community Service & Training
- Storytelling K-6
- Event Gaming Activities
- Staff & Community Training & Development
- Campus & Community Nature Walks
- Educational Film Series
- Expert Speaker Presentations
- Partnerships | MOU's
- Internship Support

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UTRGV **WINS** TREE CAMPUS USA
SERVICE LEARNING CONTEST

TREE PLANTINGS | COMMUNITY



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MCALLEN ARBOR DAY



TREE PLANTINGS | COMMUNITY



KEEP AMERICA BEAUTIFUL AFFILIATE

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PORT ISABEL HOUSING AUTHORITY TREE PLANTING



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NATIONAL BUTTERFLY CENTER & TRAINING BUTTERFLY GARDEN



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COMMUNITY SERVICE FOR TRINITY COMMUNITY GARDEN



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“BUDS IN A BOX” WITH UTRGV’s CHILD DEVELOPMENT CENTER



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TREE EDUCATION WITH UTRGV's CHILD DEVELOPMENT CENTER



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THE LORAX STORYTELLING CHILD DEVELOPMENT CENTER



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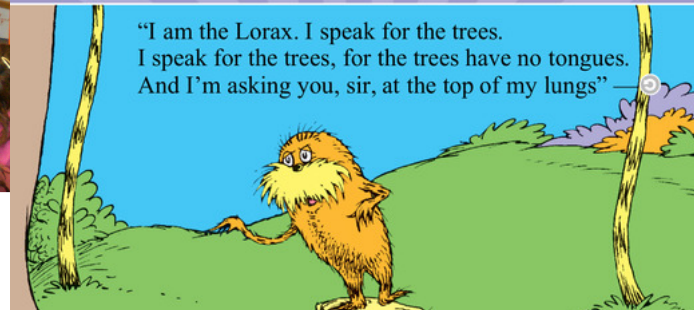


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INTERNS PRESENT THE LORAX AT LOCAL MIDDLE SCHOOL



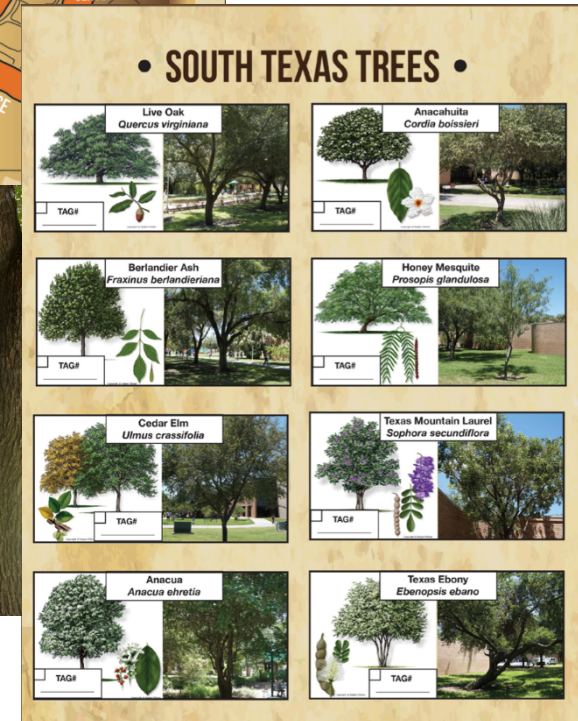
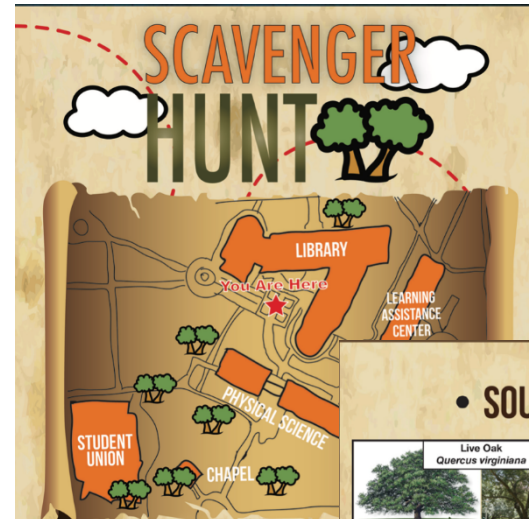
★ Speak for the trees with the Lorax! ★



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EDUCATIONAL ACTIVITY | MIDDLE SCHOOL

HESTEC SCAVENGER HUNT



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EDUCATIONAL ACTIVITY | K-6

COASTAL EXPO



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CAMPUS SUSTAINABILITY DAY



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PERMACULTURE DESIGN WORKSHOP SERIES



Permaculture

Design & Education



Part I Oct 30 - Nov 2, 2014 | Part II Jan 8 - 11, 2015



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TREE CARE & MAINTENANCE WORKSHOP



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URBAN FORESTRY SEMINAR



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4TH ANNUAL TRACS



TRAINING | CAMPUS & COMMUNITY



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ITCC SAN ANTONIO INTERNATIONAL
SOCIETY OF ARBORICULTURE
INTERNATIONAL TREE CLIMBING
CHAMPIONSHIP

TRAINING | COMMUNITY



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NATURE WALKS | CAMPUS

SOUL OF OUR URBAN FORESTRY WALK



Bottle Brush

Identification

1. Small, often no more than 15 ft tall.
2. Leaves are evergreen and blossoms can be found all year long.
3. Flowers are fragrant and can often be used to make aromatic teas.



Banana

Identification

1. Grows anywhere from 6-8 ft up to 16 ft tall.
2. Produces tasty, medium sized fruit with sweet flavor.
3. Leaves are spirally arranged and may grow up to 8 ft long and 2 ft wide.



Chinese Tallow

Identification

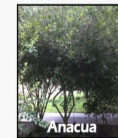
1. Can be up to 60 ft in height and 3 ft in diameter.
2. Whorled, heart-shaped leaves with a pointed tip.
3. Might have slender, drooping spikes up to 8 inches long from April to June.



Juniper

Identification

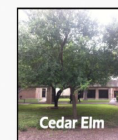
1. Is 20 to 40 m tall.
2. Female seed cones are distinctive with fleshy, fruit-like scales.
3. Many have needle-like or scale-like leaves.



Anacua

Identification

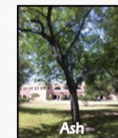
1. Can reach up to 50 feet in height.
2. It blooms from spring through summer with white, fragrant flowers that cover the tree in dense clusters.
3. Leaves have a rough texture.



Cedar Elm

Identification

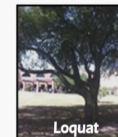
1. Flower color is red-brown to red-green.
2. Can reach up to 90 ft with width up to 80 ft.
3. Deciduous tree.



Ash

Identification

1. Bark is tight with distinct pattern of diamond-shaped ridges.
2. Leaves are compound and composed of 5-11 leaflets.
3. Seeds—when present are dry, oar shaped samaras usually in clusters.



Loquat

Identification

1. Native to south-central China.
2. Large, evergreen tree grown for its yellow fruit.
3. Can grow anywhere between 10 ft to 33 ft.

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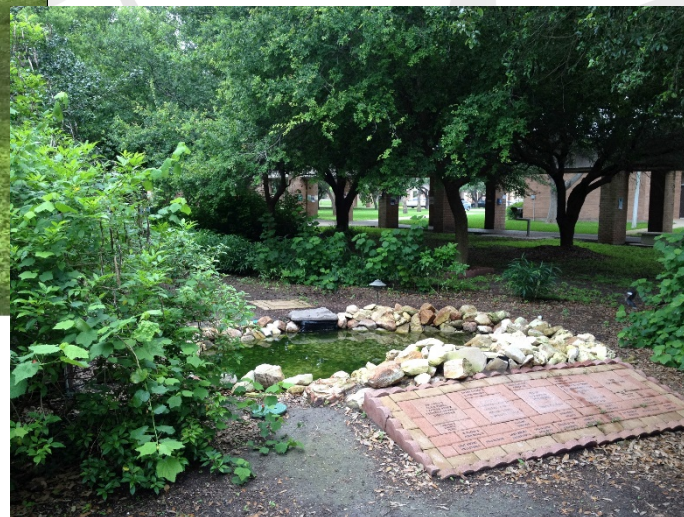


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NATURE WALKS | CAMPUS

NATURE WALK VETERANS GARDEN



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NATURE WALKS | COMMUNITY

TOUR DE TREES



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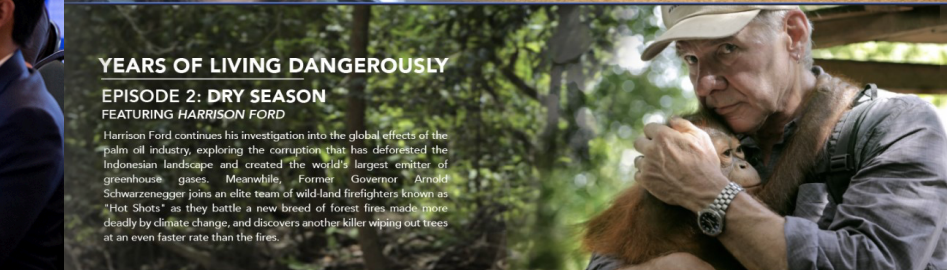
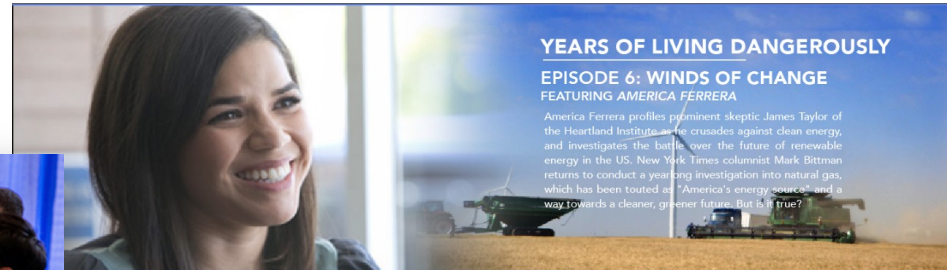


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EDUCATIONAL FILM SERIES

EDUCATIONAL FILMS | CAMPUS & COMMUNITY



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“FUTURE OF THE FOREST” WITH DR. RACELIS

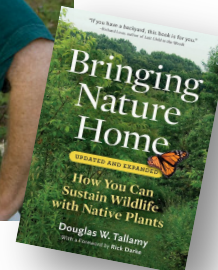


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PLANTA NATIVA



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QUINTA MAZATLAN & UTRGV EDUCATIONAL MOU



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INTERNSHIP SUPPORT



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Campus Tree Care Report 2016



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THE UNSUNG HEROES



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THANK YOU



CONTACT

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