UNFINISHED BUSINESS
I. ITEM 1.

AGENDA REPORT
April 23, 2019

Appointments, Re: Environmentally Endangered Lands Program Selection and Management Committee

SUBJECT:
Appointments, Re: members to the Environmentally Endangered Lands Program Selection and Management Committee - All Districts

FISCAL IMPACT:
There is no fiscal impact to the General Fund or the Environmentally Endangered Lands Program fund.

DEPT/OFFICE:
Parks and Recreation

REQUESTED ACTION:
It is requested the Board of County Commissioners appoint David Breininger, Paul Schmalzer, Lisa Toland, Tammy Dabu as qualified applicants to the Environmentally Endangered Land Selection and Management Committee.

SUMMARY EXPLANATION and BACKGROUND:
The EEL Selection and Management Committee serves as an expert scientific advisory committee to the County Commission on all issues related to the Environmentally Endangered Lands Program Referendum.

On January 8, 2019 the Board authorized staff to initiate procedures to appoint five members to the Environmentally Endangered Land Selection and Management Committee (SMC) under the updated membership criteria approved by the Board on February 12, 2019. Available positions were advertised through a Press Release, on Facebook, Twitter, and on the Florida Institute of Technology, University of Central Florida, Florida Fish and Wildlife Conservation Commission, Marine Resources Council, and the St. Johns River Water Management District sites for two weeks. A total of five candidates applied, of the five candidates, four were determined to meet the minimum qualifications.

The Qualifying Committee completed the Initial Ranking on March 19, 2019 and presented the ranking results to the Procedures Committee on March 29, 2019 for review and confirmation of the following qualified applicants:

Applicant	Ranking Score	Experience Summary
David Breininger	122	BS/MS/PhD / 38 years exp.

Tamy Dabu	112	BS / 26 years exp.
Paul Schmalzer	122	BA/MS/PhD / 36 years exp.
Lisa Toland	112	30 years exp.

The list of qualified applicants is now being presented to the County Commission.

Since there are four qualified science applicants and four available science open positions on the committee, staff is recommending appointment of all four science applicants (David Breininger, Tami Dabu, Paul Schmalzer and Lisa Toland) to the committee without the need for final ranking. All four terms would expire on December 31, 2020.

David Breininger and Paul Schmalzer are current members of the Selection and Management Committee.

CLERK TO THE BOARD INSTRUCTIONS:

Please return Board Direction Memo to the EEL Program Manager, Michael Knight.

ATTACHMENTS:

Description

- **Breininger Resume and Ranking Sheet**
- **Dabu Resume and Ranking Sheet**
- **Schmalzer Resume and Ranking Sheet**
- **Toland Resume and Ranking Sheet**

Deborah Thomas

From: Knight, Michael A <Mike.Knight@brevardfl.gov>
Sent: Wednesday, April 24, 2019 11:04 AM
To: Deborah Thomas
Subject: Re: EEL SELECTION AND MANAGEMENT COMMITTEE

Hi Deborah,
Lisa and Tammy are replacing Randy Parkinson and Kim Zarillo

The other agenda we had approved was for the land exchange with Pinkerton. We need to be sure the approval memo notes that the exchange is with Pinkerton and NOT Tropical Investments Group.
Thanks
Mike

Mike Knight - Program Manager
Brevard County
Environmentally Endangered Lands Program
91 East Drive
Melbourne, FL 32904
321-255-4466 Ext. 624911
Fax: 321-255-4499
mike.knight@brevardfl.gov

Find us on Facebook:
www.facebook.com/eelbrevard

On Apr 24, 2019, at 10:51 AM, Deborah Thomas <deborah.thomas@brevardclerk.us> wrote:

Good morning:

At the April 23rd Board meeting 2 members were re-appointed and 2 were appointed.

Of the 2 new Appointments; Lisa Toland and Tammy Dabu, can you tell me which members they replaced on this Board?

Please advise.

Thank you.

Deborah Thomas
Administrative Assistant
Clerk to the Board
400 South Street, 2nd Fl.

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us

April 24, 2019

Tammy Dabu
170 Grant Road
Merritt Island, FL 32953

Dear Ms. Dabu:

Re: Appointment to Environmentally Endangered Lands Selection and Management Committee

The Board of County Commissioners, in regular session on April 23, 2019, acknowledged your appointment as a citizen volunteer to the Environmentally Endangered Lands Selection Committee replacing Kim Zarillo. Said term of appointment expires December 31, 2020. Enclosed are memorandums explaining the "Sunshine Law" and 2018 changes to Voting Conflict Law for your information.

Your willingness to serve the citizens of Brevard County in this capacity is appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe

Tammy Rowe, Deputy Clerk

/dt

Encls. (2)

cc: EEL Program Manager
Parks and Recreation Director

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BOARD OF COUNTY COMMISSIONERS

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Telephone: (321) 637-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us

April 24, 2019

Lisa Toland
4092 Sparrow Hawk Road
Melbourne, FL 32934

Dear Ms. Toland:

Re: Appointment to Environmentally Endangered Lands Selection and Management Committee

The Board of County Commissioners, in regular session on April 23, 2019, acknowledged your appointment as a citizen volunteer to the Environmentally Endangered Lands Selection Committee replacing Randy Parkinson. Said term of appointment expires December 31, 2020. Enclosed are memorandums explaining the "Sunshine Law" and 2018 changes to Voting Conflict Law for your information.

Your willingness to serve the citizens of Brevard County in this capacity is appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe

Tammy Rowe, Deputy Clerk

/dt

Encls. (2)

cc: EEL Program Manager
Parks and Recreation Director

BREVARD County
BOARD OF COUNTY COMMISSIONERS

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Telephone: (321) 637-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us

April 24, 2019

David Breininger
413 Tortoise View Circle
Satellite Beach, FL 32937

Dear Mr. Breininger:

Re: Reappointment to Environmentally Endangered Lands Selection and Management Committee

The Board of County Commissioners, in regular session on April 23, 2019, acknowledged your reappointment to the Environmentally Endangered Lands Selection Committee. Said term of appointment expires December 31, 2020.

Your continued willingness to serve the citizens of Brevard County in this capacity is appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe

Tammy Rowe, Deputy Clerk

/dt

cc: Each Commissioner
EEL Program Manager
Parks and Recreation Director

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us

April 24, 2019

Paul Schmalzer
2829 Mourning Dove Way
Titusville, FL 32780

Dear Mr. Schmalzer:

Re: Reappointment to Environmentally Endangered Lands Selection and Management Committee

The Board of County Commissioners, in regular session on April 23, 2019, acknowledged your reappointment to the Environmentally Endangered Lands Selection Committee. Said term of appointment expires December 31, 2020.

Your continued willingness to serve the citizens of Brevard County in this capacity is appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe

Tammy Rowe, Deputy Clerk

/dt

cc: Each Commissioner
EEL Program Manager
Parks and Recreation Director

Brevard County
Environmentally Endangered Lands (EEL) Program
Selection and Management Committee Volunteer Application

Applicant Contact Information

Name _____

Mailing Address, Street _____

City _____ Zip _____

Phone _____ Cell Phone _____ Email _____

Instructions

The EEL Selection and Management Committee serves as an expert volunteer scientific advisory committee to the County Commission on all issues involving the acquisition and management of environmentally endangered lands with the EEL Program protected area network in Brevard County.

Please complete the following information and ***include your resume as an attachment*** when submitting this application for consideration as a volunteer member of the Selection and Management Committee.

Questions

1. Please confirm your willingness to serve on the committee for a minimum term of two years.

   Yes No __

2. Please provide a brief overview AND resume of your background and expertise related to the following committee member requirements:
   a. Four-year postsecondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum of 6 years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design.

3. Please provide an overview of your demonstrated knowledge of Brevard County ecosystems, habitat types and conservation land management techniques.

David R. Breininger 01/13/2019

Work:
Conservation Biologist

NASA Ecological Programs
Kennedy Space Center, FL 32899
Phone: (321) 289-5130
Email: david.r.breininger@nasa.gov

Home:
413 Tortoise View Circle

Satellite Beach, FL 32937
Phone (321) 777-837
dbreinin@gmail.com

Experience & Expertise
Thirty-eight years' experience integrating research, monitoring, land management, conservation area design, environmental assessment, regulatory analyses, and education. Experience emphasizes field studies, mark-recapture, remote sensing, radio telemetry, geographical information systems, statistical modeling, population analyses and landscape modeling. Collaborations with scientists and managers from federal, state, and local governments, and non-government organizations to integrate science and management to inform decision making. Expertise includes endangered species biology, biodiversity conservation, fire ecology, habitat quality, landscape dynamics, population demography, dispersal biology, and community composition.

Education
2009 *Ph.D., Conservation Biology,* University of Central Florida
1981 *M.S., Ecology*, Florida Institute of Technology
1978. *B.S., Marine Biology*, Florida Institute of Technology

Employment History
2015-present *Senior Scientist, Integrated Mission Support Services, Kennedy Space Center Ecology Program.* Conduct research on endangered species, habitat and ecosystem dynamics to support adaptive management and develop strategies for regulatory compliance, restoration, and habitat management. Participate in leadership of endangered species projects and perform advisory review of other Kennedy Space Center Ecological Program activities.
2017-present *Courtesy Faculty, University of Central Florida.* Conduct research to support strategic decision making on passive versus active translocation strategies for Florida scrub-jays subject to habitat destruction including blood and feather sampling to support genetic and disease studies.
2009-2015. *Lead Wildlife Biologist, InoMedic Health Applications, Kennedy Space Center.* Conducted research on endangered species, habitat and ecosystem dynamics to support adaptive management and develop strategies for regulatory compliance, restoration, and habitat management. Coordinate activities of 5 biologists.
1995-2009. *Senior Scientist and Lead, Dynamac Corporation, Kennedy Space Center.* Conducted research on wildlife and habitat dynamics to support environmental management, mitigation, restoration, and habitat management. Coordinated activities of 4 to 8 biologists and managed subcontracts.
1993-1995. *Research Scientist, Florida Institute of Technology* Conducted field studies and population risk modeling to support the Brevard County Scrub Conservation and Development Plan.
1984-1994. *Lead (1994), Supervisor, (1991-1993), Wildlife Biologist (1984-1990), Bionetics Corporation, Kennedy Space Center.* Conducted studies to predict and interpret environmental impacts and develop strategies for mitigation, restoration, and habitat management. Coordinated 4-7 biologists.
1982-1984. *Engineer, Planning Research Corporation.* Analyzed regulatory requirements and prepared regulatory documents for NEPA, endangered species, ground water, and surface

water, floodplain, and wetland topics to support the Kennedy Space Center Environmental Management Office.
1982. *Teacher, Brevard County School District*. Taught math and biology.
1981. *Research Assistant, Technology Incorporated, Kennedy Space Center*. Investigated effects of the space vehicle launches on vegetation.
1978-1981. *Graduate Teaching Assistant, Laboratory Supervisor, Florida Institute of Technology,* Performed field and lab instruction for Ecology, Advanced Field Ecology, Environmental Biology, Plant Biology, Vertebrate Zoology, Vertebrate Anatomy, and General Biology. Field instruction included Florida, Great Smokey Mountains, Central and Southern Rocky Mountains.

Honors and Awards

2017	Charlie Corbeil Conservation Award, Preserve Brevard
2017	Kennedy Space Center Engineer/Scientist of the Year, NASA
2016	Outstanding Alumni Knight, University of Central Florida
2016	Regional Director's Conservation Award, U.S. Fish and Wildlife Service
2014	Employee of the Month, NASA Medical and Environmental Support Contract
2009	Most Productive, NASA Life Sciences Support Contract
1997	Visionary Award, NASA Life Sciences Support Contract
1996	JFK Award for Leadership, NASA Life Sciences Support Contract
1995	Conservation Colleague Award, Nature Conservancy
1978	Graduated with High Honors, Florida Institute of Technology
1978	Beta Beta Beta Honor Society
1978.	Dean's List every quarter, Florida Institute of Technology

Appointments
2017- Conservation Committee Chair, Allen Broussard Conservancy
2016- Research Associate, University of Central Florida
2015- Board of Directors, Allen Broussard Conservancy (Forever Florida)
2014- Judge, River Fest Sustainability Award, Keep Brevard Beautiful
2009- Board, Florida Institute of Conservation Science
1997- Brevard County Environmentally Endangered Lands Selection and Management Committee
1997- Florida Scrub-Jay Recovery Team
2013- 2017 Editorial board, Advances in Ecology
2010-2011 Research Professor, Florida Institute of Technology
2010-2016 Graduate Faculty Scholar, University of Central Florida
1999-2001 Florida Scrub-Jay Fire Strike Team Advisory Board
1999-2000 Brevard County Crucial Habitat Conservation Planning Committee
1998-1999 Interagency Fire Science Team
1995-1997 South Florida Ecosystem Multi-Species Recovery Team
1997-1998 Florida Ornithological Society's Grants and Awards Committee Chair
1994-1996 Florida Ornithological Society's Research Awards Committee
1994-1995 Florida Scrub-Jay Habitat Conservation Guidelines Committee
1994-1995 Indian River Lagoon Biodiversity Symposium Planning Group, National Estuary Program
1993 Scientific Advisory Group for the Brevard County Scrub Habitat Conservation Plan, Chair

Scientific Publications (87)
Journal Articles (51)
Breininger, D.R., D.M. Oddy, E.D. Stolen, D. K. Hunt. 2018. Influence of sex and transients on survival and detection probabilities of the Southeastern beach mouse. **Journal of Mammalogy** 99: 946-951.

Bauder, J.M., D.R. Breininger, M.R. Bolt, M.L. Legare, C.L. Jenkins, B.B. Rothermel, and K. McGarigal. 2018. Multi-level, multi-scale habitat selection by a wide-ranging, federally threatened snake. **Landscape Ecology** 33: 743-763.

Breininger, D.R., T.E. Foster, G. M. Carter, B.W. Duncan, E.D. Stolen, J. E. Lyon. 2018. The effects of vegetative type, edges, fire history, rainfall and management in fire-maintained habitat. **Ecosphere** 9:1-15.

Breininger, D.R., R.D. Breininger, and C.R. Hall. 2017. Effects of surrounding land use and water depth on seagrass dynamics with attention to a catastrophic algal bloom. **Conservation Biology** 31:67-75.

Bauder, J.M., D.R. Breininger, M.R. Bolt, M.L. Legare, C.L. Jenkins, B.B. Rothermel, and K. McGarigal. 2016. The influence of sex and season on conspecific overlap in a large actively-foraging Colubrid snake. **Plos One**: 11:1-19.

Bauder, J.M., D.R. Breininger, M.R. Bolt, M.L. Legare, C.L. Jenkins, B.B. Rothermel, and K. McGarigal. 2016. Seasonal variation in Eastern Indigo Snake (*Drymarchon couperi*) movement patterns and space use in peninsular Florida at multiple temporal scales. **Herpetologica** 72: 214-226.

Bauder, J.M., D.R. Breininger, M. R. Bolt, M. L. Legare, C.L. Jenkins, and K. McGarigal. 2015. The role of the bandwidth matrix in influencing kernel home range estimates for snakes using VHF telemetry data. **Wildlife Research** 42:437-453.

Duncan, B., P. A Schmalzer, D.R. Breininger, E.D. Stolen. 2015. Comparing fuels reduction and patch mosaic fire regimes for reducing fire spread potential, a spatial modeling approach. **Ecological Modeling** 314:90-99.

Zimmerman, M., E. Stolen, D. Oddy, D. Breininger, and C. Pruett. 2015. Microspatial sampling reveals cryptic influences on gene flow in a threatened mammal. **Conservation Genetics** 16:1-12.

Breininger, B. Duncan, M. Eaton, F. Johnson, J. Nichols. 2014. Integrating land cover modeling and adaptive management to conserve endangered species and reduce catastrophic fire risk. **Land** 3:874-897.

Stolen E.D, D M. Oddy, M. L. Legare, D. R. Breininger, S.L. Gann, S. A. Legare, S. K Weiss, K. G. Holloway-Adkins. 2014. Preventing tracking-tube false detections in occupancy modeling of southeastern beach mouse. **Journal of Fish and Wildlife Management** 5:270-281.

Breininger, D.R., E. D. Stolen, G. C. Carter, D. M. Oddy, S. A. Legare. 2014. Quantifying how territory quality and sociobiology affect recruitment to inform fire management. **Animal Conservation** 17:72-79.

Breininger, D. R., M. J. Mazerolle, M. R. Bolt, M. L. Legare, J. H. Drese, J. E. Hines. 2012. Using multistate models to quantify habitat fragmentation impacts of eastern indigo snake survival. **Animal Conservation** 15:361-368.

Breininger, D.R., R. M. Bolt, M. L. Legare, J. H. Drese, E. D. Stolen. 2011. Factors influencing home range size of Eastern Indigo Snakes (*Drymarchon couperi*) in central Florida. **Journal of Herpetology** 45:484-490.

Johnson, F. A., D. R. Breininger, B. W. Duncan, J. D. Nichols, M. C. Runge, B. K. Williams. 2011. A Markov decision process for managing habitat for Florida Scrub-Jays. **Journal of Fish and Wildlife Management** 2:234-2470.

Williams, B. K., M. J. Eaton, D. R. Breininger. 2011. Adaptive resource management and the value of information. **Ecological Modeling** 222:3429-3436.

Carter, G. M., D. R. Breininger, E. D. Stolen, D. M. Oddy. 2011. Determinants of nest survival in a managed Florida Scrub-Jay population. **Condor** 113:629-636.

Breininger, D. R., J. D. Nichols, B. W. Duncan, E. D. Stolen, G. M. Carter, D. Hunt, J. H. Drese. 2010. Multistate modeling of habitat dynamics: factors affecting Florida scrub transition probabilities. **Ecology** 91:3354-3364.

Breininger, D. R., E. D. Stolen, D. M. Oddy and G. C. Carter. 2010. A model selection approach to predicting whether Florida Scrub-Jays delay breeding. **Condor** 112:378-389.

Breininger, D. R., J. D. Nichols, G. M. Carter, D. M. Oddy. 2009. Habitat-specific breeder survival of Florida Scrub-Jays: inferences using multistate models. **Ecology** 90:3180-3189.

Carter, G.M., M. L. Legare, D. R. Breininger, and D. M. Oddy. 2007. Nocturnal nest predation: a potential obstacle to recovery of a Florida Scrub-Jay population. **Journal of Field Ornithology** 78:390-394.

Breininger, D. R., B. Toland, D. M. Oddy, and M. L. Legare. 2006. Landcover characterizations and Florida Scrub-Jay (*Aphelocoma coerulescens*) population dynamics. **Biological Conservation** 128:169-181.

Carter, G. M., E. D. Stolen, D. R. Breininger. 2006. A rapid approach to modeling species-habitat relationships. **Biological Conservation** 127:237-244.

Breininger, D. R. and D. C. Oddy. 2004. Do habitat potential, population density, and fires influence Florida Scrub-Jay source-sink dynamics? **Ecological Applications** 14:1079-1089.

Akçakaya, H. R., J. L. Atwood, D. R. Breininger, C. T. Collins, B. W. Duncan. 2003. Metapopulation dynamics of the California Least Tern. **Journal of Wildlife Management** 67:829-842

Breininger, D. R. and G. C. Carter. 2003. Territory quality transitions and source-sink dynamics in a Florida Scrub-Jay population. **Ecological Applications** 13:829-842.

Breininger D. R., B. W. Duncan, and N. J. Dominy. 2002. Relationships between fire frequency and vegetation type in pine flatwoods of east-central Florida, USA. **Natural Areas Journal** 22:186-193.

Burgman, M. A., D. R. Breininger, B. W. Duncan, and S. Ferson. 2001. Setting reliability bounds on habitat suitability indices. **Ecological Applications** 11:70-78.

Breininger, D. R., M. A. Burgman, and B. M. Stith. 1999. Influence of habitat, catastrophes, and population size on extinction risk on Florida Scrub-Jay populations. **Wildlife Society Bulletin** 27:810-822.

Breininger, D. R. 1999. Florida Scrub-Jay demography and dispersal in a fragmented landscape. **Auk** 116:520-527.

Duncan, B. A., S. Boyle, D. R. Breininger, and P. A. Schmalzer. 1999. Coupling past management practice and historical landscape change on John F. Kennedy Space Center. **Landscape Ecology** 14:291-309.

Breininger, D. R., M. J. Barkaszi, R. B. Smith, D. M. Oddy, and J. A. Provancha. 1998. Prioritizing wildlife taxa for biological diversity conservation at the local scale. **Environmental Management** 22:315-321.

Breininger D. R., V. L. Larson, B. W. Duncan, R. B. Smith. 1998. Linking habitat suitability to demographic success in Florida Scrub-Jays. **Wildlife Society Bulletin** 26:118-128.

Breininger, D. R. 1997. Avifauna of an unimpounded salt marsh on Merritt Island. **Florida Field Naturalist** 25:1-10.

Smith, R. B., D. R. Breininger and V. L. Larson. 1997. Home range characteristics of radiotagged Gopher Tortoises on Kennedy Space Center, Florida. **Chelonian Conservation and Biology** 23:358-362.

Breininger, D. R., V. L., Larson, D. M. Oddy, R. B. Smith and M. J. Barkaszi. 1996. Florida Scrub-Jay demography in different landscapes. **Auk** 113:617-625.

Breininger, D. R., V. L. Larson, B. W. Duncan, R. B. Smith, D. M. Oddy, and M. F. Goodchild. 1995. Landscape patterns of Florida Scrub-Jay habitat preference and demographic success. **Conservation Biology** 9:1442-1453.

Duncan, B. A., D. R. Breininger, P. A. Schmalzer, and V. L. Larson. 1995. Validating a Florida Scrub-Jay habitat suitability model, using demography data on Kennedy Space Center. **Photogrammetric Engineering and Remote Sensing** 56:1361-1370.

Smith, R. B., and D. R. Breininger. 1995. Wading bird populations of John F. Kennedy Space Center. **Bulletin of Marine Science** 57:230-236.

Swain, H., D. R. Breininger, D. S., Busby, K. B. Clark, S. B. Cook, R. A. Day, D. E. DeFreese, R.G., Gilmore, A.W. Hart, C.R. Hinkle, D.A. McArdle, P.M. Mikkilsen, W.G. Nelson, and A.J. Zahhaorcak. 1995. Introduction to Indian River Biodiversity Conference. **Bulletin of Marine Science** 57:1-7.

Breininger, D. R., P. A. Schmalzer, and C. R. Hinkle. 1994. Gopher Tortoise (*Gopherus polyphemus*) densities in coastal scrub and slash pine flatwoods in Florida. **Journal of Herpetology**. 28: 60-65.

Breininger, D. R. 1992. Birds of swale marshes on John F. Kennedy Space Center. **Florida Field Naturalist** 20: 36-41.

Breininger, D. R. and R. B. Smith. 1992. Relationships between fire and birds in coastal scrub and slash pine flatwoods in Florida. **American Midland Naturalist** 127: 233-240.

Breininger, D. R., M. J. Provancha and R. B. Smith. 1991. Mapping Florida Scrub-Jay habitat for purposes of land-use management. **Photogrammetric Engineering and Remote Sensing** 57: 1467-1474.

Breininger, D. R., P. A. Schmalzer and C. R. Hinkle. 1991. Estimating occupancy of Gopher Tortoise (*Gopherus polyphemus*) burrows in coastal scrub and slash pine flatwoods. **Journal of Herpetology** 25: 317-321.

Breininger, D. R. 1990. Avifauna of hammocks and swamps on John F. Kennedy Space Center. **Florida Field Naturalist** 18:21-44.

Breininger, D. R. and R. B. Smith. 1990. Waterbird use of coastal impoundments and management implications in east central Florida coast. **Wetlands** 10:1-19.

Breininger, D. R. and P. A. Schmalzer. 1990. Effects of fire and mechanical disturbance on vegetation and birds in oak/palmetto scrub. **American Midland Naturalist** 123:64-74.

Dreschel, T. W., R. B. Smith and D. R. Breininger. 1990. Florida Scrub-Jay mortality on roadsides. **Florida Field Naturalist** 18:82-83.

Breininger, D. R. 1989. A new population estimate for the Florida Scrub-Jay on Merritt Island National Wildlife Refuge. **Florida Field Naturalist** 17:25-32.

Smith, R. B. and D. R. Breininger. 1988. Northern breeding range extension for the Roseate Spoonbill. **Florida Field Naturalist** 16:65-67.

Book Chapters (4)

Stolen, E. D., D, R. Breininger, and P. C. Frederick. 2005. Using waterbirds as indicators in estuarine systems: successes and perils. **Estuarine Indicators**. Pages 409-422 in S. A. Bortone, editor. CRC Press, Inc.

Breininger, D. R., M. L. Legare, and R. B. Smith. 2004. Eastern Indigo Snakes: influence of edge effects on population viability. Pages 299-311 in H. R. Akçakaya, M. A. Burgman, O Kindvall, C. C. Wood, P. Sjorgren-Gulve, J. S. Hatfield, and M. A. McCarthy, editors. **Species Conservation and Management: Case Studies**. Oxford University Press, New York.

Breininger, D. R., B. A. Burgman, H. R. Akçakaya and M. O. O'Connell. 2002. Use of metapopulation models in conservation planning, Pages 405-427 *in* K. J. Gutzwiller, editor. **Concepts and Applications of Landscape Ecology in Biological Conservation**. Springer-Verlag, N.Y.

Breininger, D. R., M. J. Provancha and R. B. Smith. 1994. Mapping Florida Scrub-Jay habitat for purposes of land-use management. Pages 251-258 *in* W.J. Ripple, editor. **The GIS Applications Book: Examples in Natural Resources a Compendium**. American Society for Photogrammetry and Remote Sensing, Bethesda, MD.

Conference Proceedings (7)

Breininger, D. R. and D. M. Oddy. 2001. Fire and Florida Scrub-Jay source-sink dynamics in mesic flatwoods. Pages 3-7 in D. P. Zattau (editor), Proceedings of the Florida Scrub Symposium 2001. U.S. Fish and Wildlife Service, Jacksonville, Florida.

Duncan, B. A. and D. R. Breininger. 1998. Quantifying habitat change: modeling historical and current Florida Scrub-Jay habitat suitability. GIS/LIS Proceedings, Dallas, Texas.

Duncan, B. W., S. Boyle, P. A. Schmalzer, and D. R. Breininger. 1996. Spatial quantification of historic landscape change within two study sites on John F. Kennedy Space Center.

Sixteenth Annual ESRI Users Conference. Published on CD-ROM and on the World Wide Web at www.esri.com.

Duncan, B. W., R. A. Reddick, R. B. Smith and D. R. Breininger. 1994. Protecting the environment in the space age: GIS at the John F. Kennedy Space Center. Geo Info Systems 4:38-42.

Ritchie, J. R., T. J. Jackson, R. M. Parry, K. S. Humes, J. E. Everitt, D. E. Escobar, M. R. Davis, D. M. Jacobs, D. L. Evans, D. R. Breininger, B. W. Duncan, and C. R. Hinkle. 1994. Remote sensing studies using an airborne laser altimeter. Proceedings of the First International Airborne Remote Sensing Conference and Exhibition. 2:457-458.

Smith, R. B., M. J. Barkaszi, and D. R. Breininger. 1993. Saving space: wildlife research of Kennedy Space Center. American Association of Zoological Parks and Aquariums Conference Proceedings 1993:230-235.

Bostater, C. R., C. R. Hall, and D. R. Breininger. 1992. High-resolution optical signatures and band selection techniques for endangered species habitat management. Proceedings of the International Symposium on Spectral Sensing Research 1:556-569.

Published Reports (19)

Hall, C.R., P.A. Schmalzer, D. R. Breininger, B.W. Duncan, J. H. Drese, D. A. Scheidt, R. H. Lowers, E. A. Reyier, K. G. Holloway-Adkins, D. M. Oddy, N. Cancro, J. A. Provancha, T. E. Foster, and E. D. Stolen, 2014. Ecological Impacts of the Space Shuttle Program at John F. Kennedy Space Center. NASA/TM-2014-216639. 241 p.

Breininger, D. R. 2004. An adaptive approach to managing Florida Scrub-Jay habitat. NASA Technical Memorandum NASA/TM-2004-211532.

Johnson, F. A. D. R. Breininger, B. Duncan, Marc Epstein. Adaptive Habitat Management for Florida Scrub-Jays at Merritt Island National Wildlife Refuge, Southeastern Adaptive Management Group, Florida Integrated Science Center. http://cars.er.usgs.gov/SEAMG/seamg_2004_annual_report/seamg_2004_annual_report.html

Breininger, D. R. 2003. Biological criteria for the recovery of Florida Scrub-Jay populations on public lands in Brevard County and Indian River County. Final Report to Endangered Species Office, U. S. Fish and Wildlife Service, Jacksonville, FL. http://northflorida.fws.gov/Scrub-Jays/breininger-2003-report.htm

Akçakaya, H. R., J. L. Atwood, D. R. Breininger, C. T. Collins, B. W. Duncan. 2001. California Least Tern: Metapopulation Dynamics and Risk Assessment. NASA/TM-2002-211172.

Stolen, E. R, D. R. Breininger, and R. B. Smith. 2002. Analysis of wading bird use of impounded wetland habitat on the Kennedy Space Center / Merritt Island National Wildlife Refuge 1987-1989. NASA/TM-211173.

Breininger, D. R., D. M. Oddy, M. L. Legare, and B. W. Duncan 2000. Developing biological criteria for the recovery of Florida Scrub-Jay populations on public lands in Brevard County: patterns of fire history, habitat fragmentation, habitat use and demography. In J.D. Brenner (editor). Ecological and economic consequences of the 1998 Florida wildfires: http://flame.fl-dof.com/joint_fire_sciences/.

Larson, V. L., S. P. Rowe, and D. R. Breininger. 1997. Temporal and spatial patterns in avian activity at the Shuttle Landing Facility, John F. Kennedy Space Center, Florida, USA. NASA/TM-97-206644.

Breininger, D. R., V. L. Larson, R. Schaub, P. A. Schmalzer, B. W. Duncan, D. M. Oddy, R. B. Smith, F. Adrian and H. Hill, Jr. 1996. A Conservation Strategy for the Florida Scrub-Jay on John F. Kennedy Space Center/Merritt Island National Wildlife Refuge: an initial scientific basis for recovery. NASA/TM-111676.

Fitzpatrick, J. W., R. Bowman, D. R. Breininger, M. A. O'Connell, B. M. Stith, J. Thaxton, B. Toland, and G.E. Woolfenden. 1995. Habitat conservation plans for the Florida Scrub-Jay: a biological framework. U.S. Fish and Wildlife Service, Jacksonville, FL.

Larson, L., S. P. Rowe, and D. R. Breininger. 1995. A review of Falconry as a bird control technique with recommendations for use at the Shuttle Landing Facility, John F. Kennedy Space Center, Florida USA. NASA/TM-110142.

Swain, H. M., P. A. Schmalzer, D. R. Breininger, K. V. Root, S. A. Bergen, S. R. Boyle, and S. MacCaffree. 1995. Appendix B: Biological Consultant's Report. In: Scrub Conservation and Development Plan, Brevard County. Natural Resource Management Division, Brevard County, Florida.

Breininger, D. R., M. J. Barkaszi, R. B. Smith, D. M. Oddy, and J. A. Provancha. 1994. Endangered and potentially endangered wildlife on Kennedy Space Center: conservation of faunal integrity as a goal for biological diversity. NASA/TM-109204.

Schmalzer, P. A., D. R. Breininger, F. Adrian, R. Schaub, and B. W. Duncan. 1994. Development and implementation of a scrub habitat compensation plan for Kennedy Space Center. NASA/TM-109202.

Breininger, D.R. 1992. Habitat model for the Florida Scrub-Jay on Kennedy Space Center. NASA/TM-107543.

Breininger, D. R. 1989. Review of wildlife resources of Vandenberg Air Force Base, Santa Barbara County, California. NASA, Biomedical Operations and Research Office, KSC. NASA/ TM-102146.

Breininger, D. R. 1988. Survey for Least Bell's Vireo in riparian habitat on Vandenberg Air Force Base, Santa Barbara County, California. NASA/TM-100984.

Breininger, D. R., P. A. Schmalzer, D. A. Rydene, and C. R. Hinkle. 1988. Burrow and habitat relationships of the Gopher Tortoise in coastal scrub and slash pine flatwoods on Merritt Island, Florida. Florida Game and Fresh Water Fish Commission Nongame Wildlife Program Final Report. Tallahassee, Florida.

Schmalzer, P. A., C. R. Hinkle and D. Breininger. 1985. Effects of space shuttle launches STS-1 through STS-9 on terrestrial vegetation of John F. Kennedy Space Center. NASA/ TM-83103.

Trade Journals (4)

Duncan, B. W., D. Breininger, R. Akçakaya, J. Atwood, and C. Collins. 2002. The California least tern spatial database. Geospatial Solutions 12 (11): 36.

Duncan, B. W., R. A. Reddick, R. B. Smith and D. R. Breininger. 1994. Protecting the environment in the space age: GIS at the John F. Kennedy Space Center. Geo Info Systems 4:38-42.

Duncan, B. W., R. A. Reddick, R. B. Smith and, D. R. Breininger. 1993. Environmental monitoring at John F. Kennedy Space Center. ARC News 15:7-16.

Triandafils, D., A. Maples, and D. Breininger. 1992. Rugged video system for inspecting animal burrows. NASA Tech Briefs 16: 92.

Theses (2)

Breininger, D. R. 2009. Landcover change and population dynamics of Florida Scrub-Jays and Florida Grasshopper Sparrows, Ph.D. Dissertation, University of Central Florida, Orlando, Florida.

Breininger, D. R. 1981. Habitat preferences of the Florida Scrub-Jay (*Aphelocoma c. coerulescens*) at Merritt Island National Wildlife Refuge, Florida. M.S. Thesis. Florida Institute of Technology, Melbourne, Florida.

Examples of >200 Lectures

2018 Florida Scrub-Jay Conservation along the Central Florida's Atlantic Coast. Archie Carr National Wildlife Working Group.

2018 Florida scrub-jay habitat & population dynamics, National Science Foundation Metamodeling Group, Working Group, White Oak.

2017. Integration of endangered species science & management using Florida scrub-jays as an example. Environmental Law Class, Florida Institute of Technology.

2016. Introduction to capture-recapture analyses using Program MARK. Beach Mouse Working Group

2015. Open water diamondback terrapin population estimation. Florida Atlantic Coast Diamondback Terrapin Working Group.
2014. Florida East Coast Diamondback Terrapin -A Species of Conservation Concern, Brevard County Environmentally Endangered Lands Program.
2014. Source-Sink Dynamics & Adaptive Management. Conservation Biology Class, University of Central Florida.
2013. Quantifying how territory quality and sociobiology affect recruitment to inform fire management. Florida Wildlife Society.
2012. Habitat & Population Dynamics of Florida Scrub-Jays. Science Café. Florida Institute of Technology and Brevard Zoo.
2009. Using multistate models to study Florida Scrub-Jay survival and ecosystem dynamics. Florida Institute of Technology, Biological Sciences Seminar.
2008. Quantifying habitat and management needs for landscape management. Beach Mouse Working Group.
2007. Adaptive Resource Management for Florida Scrub-Jays: a new way forward. Brevard Zoo and Brevard Nature Alliance.
2007. Florida Scrub-Jay Demography and Dispersal along central Florida's Atlantic Coast. Annual Banquet Speech, Florida Ornithological Society.
2007. Collaborating to recover Florida Scrub-Jays on conservation lands. Northeast Florida Scrub Working Group.
2006. Building networks in rapidly developing human landscapes: an example from Florida. Connectivity and Reserve Design: Incorporating Landscape and Population Connectivity into Conservation Planning for Changing Land- and Seascapes Symposium. Society of Conservation Biology.
2005. Adaptive Management of Florida Scrub-Jays at Merritt Island NWR, Adaptive Management Conference Series #7, Adaptive Resource Management for Threatened and Endangered Species #2, National Conservation Training Center.
2004. Edge effects and population viability of Eastern Indigo Snakes. International Snake Ecology Conference 4. Applied Ecology Workshop. Southern Illinois University.
2003. Waterbirds as estuarine indicators. Estuarine Indicators Workshop, Sanibel-Captiva Conservation Foundation, Sanibel, Florida.
2002. Florida Scrub-Jay habitat and populations along Florida's Atlantic Coast. Pelican Island National Wildlife Refuge Celebration, Sebastian, Florida.
2001. How does fire history influence Florida Scrub-Jay populations? Space Coast Flyway Festival, Merritt Island Florida. Talk and field tours led each year.
2000. Opportunities for Florida Scrub-Jay recovery along the east central Florida coast. Spring Florida Ornithological Society Meeting, Titusville.
1999. How does fire history influence Florida scrub animals? Florida Scrub Habitat Management workshop, Tampa, Florida.
1995. Influence of habitat, catastrophes, and population size on extinction risk on Florida Scrub-Jay populations. Florida Ornithological Society, Fall Meeting, Cocoa Beach.
1994. Spatial patterns in habitat preference and demographic success of Florida Scrub-Jay populations. Ecology Institute, University of Georgia.
1992. Spatial distribution and habitat needs have endangered species in scrub along the central Florida Atlantic coast. Florida Native Plant Society.
1990. Effects of fire on birds in a Florida oak/palmetto scrub. South Florida Interagency Wildland Fire Council.
1990. Effects of fire and mechanical disturbance on Florida Scrub-Jays, Gopher Tortoises and Indigo Snakes. National Wildfire Coordinating Group.
1989. Effects of fire and mechanical disturbance on plants and animals in coastal scrub and slash pine. Florida Chapter of The Wildlife Society.
1989. Effects of fire on Florida Scrub-Jays, Gopher Tortoises and Indigo Snakes. State Department Office of Foreign Disaster Assistance. Merritt Island National Wildlife Refuge.

1989. Overview of terrestrial and wetland wildlife research at Kennedy Space Center. Center for Wetlands, University of Florida.

Proposals Funded ($>3 million) as Co-PI or PI

2020-2017	Using genetics and ecology to identify optimal conservation strategies for Florida scrub-jays impacted by habitat loss, Florida Department of Transportation, University of Central Florida
2012-2008	Adaptive resource management monitoring of Florida Scrub-jays on Merritt Island National Wildlife Refuge, U.S. Fish and Wildlife Service.
2011-2007	Florida Scrub-Jay demography in restored landscapes, Brevard Zoo.
2009-2007	Quantifying habitat and population dynamics to guide Florida Scrub-Jay recovery, Florida Fish and Wildlife Conservation Commission.
2006-2005	Florida Scrub-Jay population and habitat dynamics along central Florida's Atlantic coast, Brevard Nature Alliance.
2006-2005	Florida Scrub-Jay population dynamics. Alan Broussard Conservancy.
2006-2005	Metapopulation dynamics and recovery potential of Florida Grasshopper Sparrows (*Ammodramus savannarum floridanus*), U.S. Fish and Wildlife Service.
2004-2003	Florida Scrub-Jay Habitat and Population Status on St. Sebastian River State Park Preserve, Florida Department of Environmental Protection.
2004-2002.	Status and distribution of Eastern Indigo Snakes (*Drymarchon corais couperi*) on Avon Park Air Force Range, U.S. Air Force.
2002-2001.	Metapopulation viability analyses of the California Least Tern, NASA.
2001-2000.	Population viability of the Eastern Indigo Snake, U.S. Fish and Wildlife Service.
2001-1999.	Habitat and demographic studies supporting development of a population risk model for the Eastern Indigo Snake, Bailey Wildlife Foundation.
1999-1998.	Patterns of Fire History, Habitat Fragmentation, Habitat Use and Florida Scrub-Jay Demography, Florida Fire Science Team.
2002-1997.	Biological Criteria for the Recovery of Florida Scrub-Jay Populations on Public Lands in Brevard County and Indian River County, U. S. Fish and Wildlife Service.
1998-1997.	Habitat mapping and analyses for the Sebastian Highlands Scrub Habitat Conservation Plan, Indian River County Natural Resources Department.
1997-1995.	Florida Scrub-Jay demography of an urban metapopulation along Florida's Atlantic Coast, U.S. Fish and Wildlife Service.
1997-1994.	Wildlife operational hazards and minimization of bird strike risk to aircraft, NASA.
1995-1993.	Technical support to Brevard County Scrub Habitat Conservation Plan, Brevard County Natural Resources Office.
1993-1992.	Florida Scrub-Jay demography and dispersal along South Brevard's beaches, Alan Broussard Conservancy.
2002-1992	Monitoring scrub restoration on Merritt Island, NASA.
1994-1990.	Florida Scrub-Jay demography on Cape Canaveral Air Station, U.S. Air Force.
1994-1989.	Playlinda Beach Study of Florida Scrub-Jays at Canaveral National Seashore, National Park Service.
1992-1988.	Florida Scrub-Jay response to habitat destruction, U.S. Fish and Wildlife Service.
1985-1984.	Burrow and habitat study of the Gopher Tortoise. Florida Fish and Wildlife Conservation Commission.

Peer review

Ecology, Conservation Biology, Global Ecology and Biogeography, Forest Ecology and Management, Journal of Wildlife Management, Photogrammetric Engineering and Remote

Sensing, Auk, Condor, Waterbirds, Journal of Herpetology, Herpetological Review, International Journal of Wildland Fire, Southwestern Naturalist, Florida Division of State Lands, Acta Oecologica, Avian Biology, Canadian Journal of Zoology, Ecography, National Science Foundation, Forest Ecology and Management, Natural Areas Journal, Florida Field Naturalist, Florida Nongame Grant Program, Plos One, Herpetologica, Land, Biological Conservation, Remote Sensing, Oikos, Thallassia, Oecologia.

Project leadership examples

- NASA Ecological Program Project Review and Advisory Board
- Developing an approach to estimate invasive species (feral pig), emerging predators, and rare species using camera trapping and auditory receivers
- Developing a two-phase approach to diamondback terrapin population estimation
- Coordinated adaptive management program for Florida scrub-jay habitat and population management decision making
- Developed a research and monitoring program to predict and interpret how land cover and habitat management influenced Florida scrub-jay habitat and population dynamics
- Developed endangered species compensation plan for new spaceport development
- Developed spatially explicit Florida grasshopper sparrow metapopulation model
- Developed spatially explicit Florida scrub-jay population model to investigate land cover change
- Initiated a program to develop occupancy approaches to monitor southeastern beach mouse population viability and responses to management
- Developed modeling approach to predict how land cover and protected area conservation scenarios influenced eastern indigo snake population viability
- Conducted snake trapping studies on Avon Park Bombing Range
- Performed indigo snake telemetry studies on Avon Park Bombing Range and east central Florida
- Conducted analyses of eastern indigo snake home range, habitat use, movement and survival in relation to different land cover types
- Mentored graduate students on field studies and capture-recapture analyses of many wildlife species
- Assembled a scientific team to do a metapopulation analyses of the California least tern using data from Baja to Oregon
- Assembled a scientific team to do populations analyses of the Western snowy plover at Vandenberg Air Force Base
- Assembled a scientific team to summarize how metapopulations models were used to support landscape ecology and conservation planning internationally
- Quantified how upland and wetland bird assemblages varied based on fire and water management, land cover, and habitat structure
- Developed an approach to identify and prioritize wildlife species of special conservation concern for monitoring and research
- Performed impact studies of unauthorized habitat destruction to Florida scrub-jays as potential Endangered Species Act violations to aid law enforcement and prosecutors
- Characterized wildlife species of biodiversity concern on Vandenberg Air Force Station
- Investigated how gopher tortoise gopher tortoise densities were influenced by water table, vegetation composition, time-since-fire, and habitat structure
- Mentored high school student and teachers in NASA Education Programs (e.g. SHARP)
- Developed approaches to measure gopher tortoise burrow occupancy in different habitat types
- Conducted monitoring of wildlife responses to rocket launches on Kennedy Space Center and Cape Canaveral Air Force Station
- Assisted in the development of endangered species recovery plans
- Assisted in the development of habitat conservation plans and guidelines on habitat conservation plans

- Assisted in the development, administration, and publication of the Indian River Lagoon Biodiversity Symposium
- Developed a wildlife habitat relationship model to predict wildlife species composition by land cover type
- Characterized how groundwater regulatory changes could affect Kennedy Space Center operations and develop a compliance approach
- Preparing, reviewing, and editing NEPA documents
- Developing comments to proposed endangered species listings
- Reviewing laws, regulations, agreements, and NEPA documents to summarize Kennedy Space Center environmental monitoring requirements
- Developed an approach to monitor vegetation responses to space shuttle exhaust

Training

State and Transition Modeling using ST-SIM, Colin Daniels
Master in Business Administration (1/2 course work completed, Florida Institute of Technology)
Mark-recapture, Colorado State University
Habitat Evaluations Procedures, Colorado State University
Ecological Modeling, Colorado State University
Model Selection and Multi-Model Inference, David Anderson
Advanced ARC/INFO, ESRI
Global Positioning Systems, Trimble
ENVI Image Processing, Research Systems, Inc.
Fire Suppression and Standards for Survival, U.S. Fish and Wildlife Service
Interagency Prescribed Fire, Florida Department of Agriculture
Aircraft Safety, U.S. Fish and Wildlife Service
Population Risk assessment, Mark Burgman, Resit Akçakaya, Scott Ferson
Dozens of Environmental Law, Permitting & Regulatory classes
Certified Scuba Diver (>500 open water dives)
Hundreds of First Aid, CPR, and Safety classes

Thesis committees

2017 Population genetics of the Florida scrub-jay population at Kennedy Space Center Cory Spern. M.S., Florida Institute of Technology

2013 Microspatial population structure, gene flow, and effective population size of southeasterm beach mice (*Peromyscus polionotus niveiventris*), Monica Zimmerman, M.S., Florida Institute of Technology

2013 Modeling survival of immature loggerheads (*Caretta caretta*) and green turtles (*Chelonia mydas*) from 10 years of mark-recapture data at the Florida Power and Light St. Lucie Plant. Andrew Turner, M.S. University of Central Florida

2012 Behavioral analysis of yellow rat snake (*Elaphe obsolete quadrivittata*), a predator of the threatened Florida scrub-jay (*Aphelocoma coerulescens*) in the Kennedy Space Center's Merritt Island National Wildlife Refuge. Angela Munoz. M. S. Florida Institute of Technology

Press, Educational and Outreach Programs.

Participated in newspaper articles, public radio, education and television news casts greater than 20 times. Recent examples include NASA Science Files, British Broadcasting Corporation, and Discovery Channel. Organized workshops on biodiversity, adaptive management, scrub biology, and fire management.

References.

Dr. Jim Nichols, Senior Scientist and Wildlife Biologist. USGS Patuxent Wildlife Research Center, 12100 Laurel Beech Forest Road, Laurel, Maryland 20708-4017. jnichols@usgs.gov, Phone 301-497-5660.
Dr. Reed Noss, Davis-Shine Professor of Conservation Biology, 4000 Central Florida Boulevard, University of Central Florida, Orlando, Florida 32816-2368. rnoss@mail.ucf.edu, Phone 321-823-0975.
Dr. Ross Hinkle, Vice Provost and Dean, Professor of Biology, , 4000 Central Florida Boulevard, University of Central Florida, Orlando, Florida 32816-2368. rhinkle@mail.ucf.edu, Phone 407-823-6432.
Dr. Carlton Hall, Chief Scientist, Ecological Programs, Kennedy Space Center, Florida 32899. carlton.r.hall@nasa.gov, Phone 321- 321-861-0793.

Personal
Married, three children with strong participation in conservation
Excellent physical condition
Avocations: Surfing, weight-lifting, canoeing, kayaking, fishing, scuba diving, snorkeling, boating, camping, backpacking, skiing, photography, nature observation, marine life, Boy Scouts, coaching.

Primary Permit Holder:
U.S. Fish and Wildlife Service TE106005-4 Florida scrub-jay monitoring
U.S. Geological Survey Federal Bird Master Marking and Salvage Permit 22379.
NASA Institutional Animal Care and Use Committee Protocol GRD-06-043
Merritt Island National Wildlife Refuge Special Use Permit SUP 021

EEL Program Qualifying Committee Initial Ranking

Committee Member: Committee

Applicant Name: Breinger

Points

Minimum Qualifications:

- Have a willingness to serve in a voluntary capacity. ✓Yes __No
- Be willing to make a long-term commitment to the EEL Selection and Management Committee. ✓Yes __No
- Have a post secondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum six (6) years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design. ✓Yes __No
- Have demonstrated knowledge of Brevard County ecosystems and specific knowledge of the habitat types and conservation land management techniques. ✓Yes __No

❖ *Does Applicant Meet Minimum Qualifications?* ✓Yes __No *Yes = 100 points No = 0 points*
Brief description of education, professional experience, and demonstrated knowledge of Brevard ecosystems:

Points: 100

Additional Points:

- Five (5) additional points are assigned for each graduate degree (Masters or Doctorate) in ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural areas sanctuary design.

❖ *Does applicant earn additional points for education?* ✓Yes __No
Brief description:

Points: 10

- And/or two (2) additional points for each year up to six (6) years for demonstrated professional expertise in biological or environmental sciences, OR a closely related conservation field as described above?

❖ *Does applicant earn additional points for professional expertise?* ✓Yes __No
Brief description:

Points: 12

Total Points 122

Brevard County
Environmentally Endangered Lands (EEL) Program
Selection and Management Committee Volunteer Application

Applicant Contact Information

Name Tamy Dabu

Mailing Address, Street 170 Grant Road

City Merritt Island Zip FL 32953

Phone _____ Cell Phone 321-474-4315 Email t3ndabu@bellsouth.net

Instructions

The EEL Selection and Management Committee serves as an expert volunteer scientific advisory committee to the County Commission on all issues involving the acquisition and management of environmentally endangered lands with the EEL Program protected area network in Brevard County.

Please complete the following information and ***include your resume as an attachment*** when submitting this application for consideration as a volunteer member of the Selection and Management Committee.

Questions

1. Please confirm your willingness to serve on the committee for a minimum term of two years.
   Yes ☒ No ☐

2. Please provide a brief overview AND resume of your background and expertise related to the following committee member requirements:
   a. Four-year postsecondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum of 6 years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design.

I have a B.S. degree in Biology. I have over 13 years of biological/environmental experience with the Florida Department of Environmental Protection and over 13 years of biological/environmental experience with the U.S. Army Corps of Engineers. Combined I have over 26 years of regulatory experience reviewing, assessing and permitting thousands of projects in Brevard County and the Central Florida area.

3. Please provide an overview of your demonstrated knowledge of Brevard County ecosystems, habitat types and conservation land management techniques.

As a Program Manager with the regulatory agencies, I have extensive knowledge of the ecosystems found in Brevard County. I have reviewed thousands of projects in Brevard County with the review including extensive consideration for threatened/endangered species, SHPO/THPO, habitats, fire management, conservation techniques, jurisdictional boundaries, assessments and land management techniques. I have also reviewed and authorized numerous EEL Program projects from a compensatory mitigation standpoint.

Tamy S. Dabu
170 Grant Road
Merritt Island, FL 32953
USA

Email: tamy.dabu@us.af.mil
Email: t3ndabu@bellsouth.net
Cell: (321) 474-4315
Work: (321) 494-7198
DSN: 854-7198

Work Experience

Environmental Program Manager, United States Air Force
Air Force Civil Engineer Center (AFCEC), Patrick Installation Support Section (ISS)
1224 Jupiter Street
Patrick Air Force Base, FL 32925
Supervisor: Michael Willard (321) 494-7199, DSN 854-7199; Contact: Yes

November 2018 – present, Biological Scientist (Environmental), GS-0401-12.
40 hours per week.
Clearance: Secret

Duties: Provide professional AFCEC environmental compliance support to the following installations: Avon Park Air Force Range, MacDill Air Force Base, and 45th Space Wing (Patrick Air Force Base, Cape Canaveral Air Force Station, Malabar Tracking Annex, Jonathan Dickinson Missile Tracking Annex (JDMTA), Ascension Island. Provide professional expertise and technical support with an emphasis in the Air Quality, Storage Tanks/POL, Natural Resources and Water Programs. Provide direct program management of these programs in direct support of Planning, Programming, Budgeting & Execution (PPBE) for Environmental Quality (EQ). Provide policy and guidance, program evaluation, resource allocation, and other direct support for all regional environmental compliance, pollution prevention, natural/cultural resources, and cleanup programs, operations and activities. Exercises professional judgement in recognizing and resolving and/or recommending solutions to difficult or unusual environmental problems. Provides consultation and advisory services to leadership and customers in support of environmental administrative issues. Executes AFCEC environmental programs IAW DoD and AF policy and all applicable laws/regulations. Provide advisory services in support of environmental administrative issues. Communicate critical issues to appropriate ISS staff, superiors, installation staff and other stakeholders. Develop specific plans for programs based on org goals and objectives. Identifies strategic sourcing opportunities and leverages a variety of exec methods to reduce cost and provide speedy delivery of products and services. Identifies program execution and contracting strategies to enable efficiencies. Develops, reviews and manages contracts for environmental projects and services.

Provides prompt professional direction and oversees a team of environmental professionals. Provide expertise and support to installations to maintain compliance with all environmental laws and regulations. Timely prepare technical legal documents and/or concise technical information for the installations for submittal to state and various federal regulatory agencies for approval. Serves as a liaison and maintains a technical dialog with my coworkers, contractors, consultants, state and federal agencies. Experience and knowledge of construction and service contracting procedures relevant to executing environmental related contracts. Effectively communicate in a formal briefing or in a public speaking forum. Utilize AF databases such as eDash, MICT, ESOHMIS, APIMS, STAR, Water Enterprise Tracking (WET), Refrigerant Management Compliance, Enforcement Actions Spills Inspections (EASI).

Air Quality and Storage Tanks Program Manager, United States Air Force
45 CES/CEIE
1224 Jupiter Street
Patrick Air Force Base, FL 32925
Supervisor: Laurie Fisher (321) 494-7288, DSN 854-7288; Contact: Yes

June 2016 – November 2018, Biological Scientist (Environmental), GS-0401-12,
40 hours per week (Air Quality Program Manager)
June 2017 – present, Biological Environmental), GS-0401-12,
40 hours per week (Air Quality and Storage Tanks Program Manager)
Clearance: Secret

Duties: Responsible for administrating the Air Quality and Storage Tank Programs for the 45TH Space Wing (45 SW) which includes Patrick Air Force Base (PAFB), Cape Canaveral Air Force Station (CCAFS), Malabar Tracking Annex (MTA), Jonathan Dickinson Missile Tracking Annex (JDMTA) and Ascension Island. Timely prepare all regulatory submittals, many require SW/CC sig. Proficient with the Air Force staffing process for documents. Adhere to Clean Air Act (CAA), Air Force Instructions (32-7040, 32-7044), Air Force Manual (32-7089), Florida Administrative Codes for Air Program and Storage Tank Programs. Utilize the Air Program Information Management System (APIMS) and Storage Tank Accounting & Reporting (STAR) for tracking air emissions and for storage tank compliance. Develop Performance Work Statements (PWS), Statement of Work (SOW) and supporting IGE's, for numerous projects. Utilize AF databases such as eDash, MICT, ESOHMIS, APIMS, STAR, Water Enterprise Tracking (WET), Refrigerant Management Compliance, Enforcement Actions Spills Inspections (EASI). Assist and mentor coworkers. Conduct Multi-Media (Air, Storage Tank, Hazardous Waste, and Water) Inspections to ensure our compliance with Federal, State and municipal regulations. Maintain a professional dialog with my coworkers, contractors, consultants, state and federal agencies. Knowledge of AF budget and funding processes. Prepare budgets for Air Quality & Storage Tank Programs through upcoming fiscal years (FY). Timely complete all Data Calls. Experience with contracting procedures for environmental related contracts. Completed and maintain current hazardous waste, safety, DoD, AF trainings as required. Experience with effectively speaking in a formal briefing, in agency meetings or to the public. Proficient

with writing technical documents for various audiences. Alternate Approving Official (AO) for 45 SW Environmental Compliance Program. Demonstrate excellent problem resolution skills, concrete action plans to resolve problems, skill in fact finding. Strong organizational skills to manage multiple tasks efficiently and effectively.

Project Manager, United States Army Corps of Engineers (ACOE)
Jacksonville District, North Permits Branch,
Cocoa Permits Section
400 High Point Drive, Suite 600
Cocoa, FL 32926
Supervisor: Irene Sadowski, (321) 504-3771, Contact: Yes

April 2008 – June 2016, Project Manager/Biologist, GS-0401-12, 40 hours per week.
June 2003 – March 2008, Project Manager/Biologist GS-0401-11. 40 hours per week.
Clearance: Secret

Duties: Responsible for timely and professionally reviewing applications for work in waters of the United States (Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403)) and within jurisdictional wetlands (Section 404 of the Clean Water Act (33 U.S.C. 1344)) under all appropriate regulations, policy and guidance. Provide excellent reliable public service. Manage one of the largest workloads in the District. Uphold the Department of Army (DA) values: loyalty, duty, respect, selfless service, honor, integrity, and personal courage. Maintain a professional dialog with my team, sponsors, state and federal agencies, applicants and consultants. Responsible for reviewing projects that involve Section 103 of the Marine Protection, Research & Sanctuaries Act of 1972 (33 U.S.C. 1413) work. As a reliable professional Project Manager I am able to evaluate all levels and types of DA permit applications, including complex and controversial projects, perform jurisdictional determinations, functional assessments, review and develop compensatory mitigation proposals that adhere to all regulatory requirements including Endangered Species Act and National Historic Preservation Act. Projects are timely reviewed, coordinated with other federal agencies, Environmental Assessments are prepared and final action is taken. As a Project Manager in the Regulatory Division I perform extensive oral and written communication with the applicant, agent, engineer, consultant, municipality, general public and other regulatory agencies. Serve as a contributing member of the Training Product Development Team (PDT) and Endangered Species Act PDT. Champion on the Efficiency PDT, which developed numerous methods to improve Regulatory Division's work efficiencies. I have managed projects from applicants that include Walt Disney World, Canaveral Port Authority, NASA, St Johns River Water Management District, Brevard County, Indian River County, and thousands of others.

May 2012 – August 2012
Acting Section Chief, United States Army Corps of Engineers
Panama City Section, GS-0401-13,
Regulatory Division, North Permits Branch, 40 hours per week.

Duties: Supervise and mentor a staff of five by applying policies, procedures and regulations related to the ACOE regulatory program in a manner that ensures decisions made are sound and balanced between technical accuracy, product quality, mission requirements, while being fair to the applicant. Review and prepare recommendations and permit decision documents that are clear and concise and reflect a thorough knowledge of the laws, policies, regulations, and precedents applicable to the Regulatory Program. Ensure that the level of detail to each evaluation (environmental assessment) commensurate with the complexity of the proposed project. Build and maintain collaborative, proactive relationships with staff, internal and external customers and stakeholders to provide quality products and services. Promote synergy, teamwork, and trust by fostering open, honest communications with internal and external stakeholders. Promote public confidence in products and projects delivered by ACOE.

December 2001 –June 2003
Environmental Manager, Florida Department of Environmental Protection (FDEP)
3319 Maguire Blvd, Suite 232
Orlando, FL 32803
40 hours per week.

Duties: Manage the Submerged Lands and Environmental Resource Program's (SLERP) permitting program and 8 staff; review and process complex projects, DRI's and Clearing House Projects; resolves problematic and complex projects; coordinates training for all SLERP staff; primary volunteer for speaker on behalf of the SLERP Central District; provides permitting guidance to the compliance/enforcement staff when necessary; conducts site inspections to assess the biological, ecological, water quality and proprietary impacts that a project may pose; conducts compliance inspections; counsels property owners, governmental officials, engineers, and developers and assists in the preparation of permit applications when necessary, explaining the jurisdictional responsibilities and permitting procedures within the Florida Department of Environmental Protection, Environmental Resource Program in the Central District. The Central District area comprises of eight counties: Brevard, Indian River, Lake, Marion, Orange, Osceola, Seminole, and Volusia.
Immediate supervisor: George Gionis: 407-893-3310 (retired).

September 1999 – December 2001
Environmental Supervisor, FDEP
3319 Maguire Blvd, Suite 232
Orlando, FL
40 hours per week.

Duties: Supervised the Submerged Lands and Environmental Resource Program's (SLERP) permitting staff (five employees); Review and process complex projects; Resolve problematic and complex projects;
Coordinate training for all SLERP staff; Primary volunteer for speaker on behalf of the SLERP Central District; Provide permitting guidance to the compliance/enforcement staff when necessary; Conduct site inspections to assess the biological, ecological,

water quality and proprietary impacts that a project may pose; Conduct compliance inspections; Counsel property owners, governmental officials, engineers, and developers and assists in the preparation of permit applications when necessary, explaining the jurisdictional responsibilities and permitting procedures within SLERP. Immediate supervisor: Terry Zable (no longer with the FDEP) and George Gionis: 407-893-3310 (retired).

August 1990 – September 1999
Environmental Specialist (I & II): Florida Department of Environmental Protection/Florida Department of Environmental Regulation,
3319 Maguire Blvd, Suite 232
Orlando, FL
40 hours per week.
Duties: Responsible for the review and processing of environmental resource permit applications (initially dredge/fill applications); conducts site inspections to assess the biological, ecological, water quality and proprietary impacts that a project may pose; counsels property owners, governmental officials, engineers, and developers; performs informal jurisdictional determinations; review and process mangrove applications; assist in training new employees; familiar with dredge and fill, environmental resource permitting and proprietary authorization review and process.

December 1988 – December 1989
Tax and Insurance Administrator: **Hazleton Laboratories Corporation**, Herndon, VA
40 hours per week.
Duties: Filed all state tax returns; accounted for current and deferred taxes; prepared consolidated tax provisions; administered all insurance policies and as necessary within the corporate office.

August 1987 – November 1988
Laboratory Specialist: Akzo/Bionetics Research, Inc. Rockville, MD
40 hours per week.
Duties: Developed hybridomas for contract and commercial purposes. Included fusion, screening, cloning and partial characterization of monoclonal antibodies; use of sterile tissue culture techniques.

November 1986- August 1987
Research Technician: In Vitro Cell Line Screening Project, National Cancer Institute, Frederick Cancer Research Facility, Frederick, MD
40 hours per week.
Duties: Performed general laboratory procedures including sterile tissue culture techniques, In Vitro drug toxicity studies and data analysis using computer systems.

Education:
B.S. in Biology, Bridgewater College – May 1986
A.A. in Accounting, Northern Virginia Community College – December 1989

Additional Information

AF Training:
Approving Official Training
APIMS database
STAR database
HAZWOPPER Training
7 Habitats of Highly Effective People
Currently enrolled in Squadron Officer School (SOS)

USACE training:
13+ years of experience with Section 10/404 programs
Prospect Courses: Regulatory I, II A, II B, II C, IV, Wetlands Development & Restoration, Environmental Impact Assessment, Environmental Laws & Regulations, Cumulative Impact Assessment.

State training:
13 years of experience with the dredge/fill, wetland resource/environmental resource program
I have permitted in excess of 3,000 projects during this time frame (most of these projects were located in Brevard, Indian River, Orange and Marion Counties).
Wetland Delineation Training
Supervisory Training
Public Service Training

AWARDS:
2018 – Cash Award & Time off Performance Award
2017 – Cash Award & Time off Performance Award
2011 – Cash Award, for my contributions on the Endangered Species Act (ESA) PDT and the Efficiency PDT.
2010 – Cash Award, for managing projects.
2009 – On the Spot Award, for my selfless service at the 2009 Florida Dock and Marine Expo in Jacksonville, Florida.

Florida Department of Environmental Protection (FDEP) Employee of the Month - December 2002
FDEP, Central District Employee of the Month – October 2002
FDEP, Central District Outstanding Performance Award 2001
FDEP, Central District Superior Performance Award 2000
FDEP, Central District Award
FDEP, Central District Award
FDEP, Central District
FDEP Central District Employee of the Month – June 1995

EEL Program Qualifying Committee Initial Ranking

Committee Member: Committee

Applicant Name: Debu	Points
Minimum Qualifications: • Have a willingness to serve in a voluntary capacity. ✓ Yes __No • Be willing to make a long-term commitment to the EEL Selection and Management Committee. ✓ Yes __No • Have a post secondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum six (6) years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design. ✓ Yes __No • Have demonstrated knowledge of Brevard County ecosystems and specific knowledge of the habitat types and conservation land management techniques. ✓ Yes __No	
❖ *Does Applicant Meet Minimum Qualifications?* ✓ Yes __No *Yes = 100 points No = 0 points* *Brief description of education, professional experience, and demonstrated knowledge of Brevard ecosystems:*	
Points:	100
Additional Points: • Five (5) additional points are assigned for each graduate degree (Masters or Doctorate) in ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural areas sanctuary design.	
❖ *Does applicant earn additional points for education?* __Yes ✓ No *Brief description:*	
Points:	Ø
• And/or two (2) additional points for each year up to six (6) years for demonstrated professional expertise in biological or environmental sciences, OR a closely related conservation field as described above?	
❖ *Does applicant earn additional points for professional expertise?* ✓ Yes __No *Brief description:*	
Points:	12
Total Points	112

Brevard County
Environmentally Endangered Lands (EEL) Program
Selection and Management Committee Volunteer Application

Applicant Contact Information

Name Paul A. Schmalzer

Mailing Address, Street 2829 Mourning Dove Way

City Titusville Zip 32780

Phone 321-268-5473 Cell Phone 321-446-7580 Email schmalzp@digital.net

Instructions

The EEL Selection and Management Committee serves as an expert volunteer scientific advisory committee to the County Commission on all issues involving the acquisition and management of environmentally endangered lands with the EEL Program protected area network in Brevard County.

Please complete the following information and ***include your resume as an attachment*** when submitting this application for consideration as a volunteer member of the Selection and Management Committee.

Questions

1. Please confirm your willingness to serve on the committee for a minimum term of two years.
   Yes ■ No ☐

2. Please provide a brief overview AND resume of your background and expertise related to the following committee member requirements:
   a. Four-year postsecondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum of 6 years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design.

   Education: B.A. Biology, Western Maryland College,1976; M.S. Ecology, The University of Tennessee, Knoxville, 1978; Ph.D. Ecology, The University of Tennessee, Knoxville, 1982. Professional Experience: 1982-Present, Plant Ecologist, Ecological Program, Kennedy Space Center: Studies of scrub vegetation, wetlands vegetation, fire ecology, flora, rare plants, historical vegetation, restoration ecology, and environmental impact analyses.

3. Please provide an overview of your demonstrated knowledge of Brevard County ecosystems, habitat types and conservation land management techniques.

   I have studied Brevard County ecosystems for > 36 years. I am author or coauthor of 52 published papers, 46 of which derive from studies in Brevard County, 45 technical reports (36 Brevard), and 108 presented papers (94 Brevard). I have worked extensively on the fire management and restoration of scrub vegetation and also on wetland systems. I have been on site visits to most EEL sanctuaries, compiled preliminary plant species lists for many sanctuaries, and conducted public field trips to numerous sanctuaries. See attached for additional information.

2/6/2019

PAUL A. SCHMALZER

EDUCATION

Western Maryland College, B.A. Biology 1976
The University of Tennessee, M.S. Ecology 1978
The University of Tennessee, Ph.D. Ecology 1982

EXPERIENCE

Thirty-seven years of experience in the design and implementation of ecological research, environmental impact analysis, and biological surveys. Expertise in terrestrial plant ecology, fire ecology, restoration ecology, vascular flora, vegetation sampling, and vegetation data analysis.

INTEGRATED MISSION SUPPORT SERVICES
Senior Plant Ecologist, Kennedy Space Center, Florida. November 2015-Present
Conduct studies of Kennedy Space Center vegetation, fire ecology, and restoration of scrub and wetlands vegetation. Conduct studies of rare plant distributions and ecology. Provide technical guidance to the Vegetation Studies Group. Maintain KSC Herbarium.

UNIVERSITY OF CENTRAL FLORIDA, DEPARTMENT OF BIOLOGY
Courtesy Research Associate, Orlando, Florida. March 2016-Present

INNOVATIVE HEALTH APPLICATIONS/INOMEDIC HEALTH APPLICATIONS
Technical Lead, Plant Ecologist, Kennedy Space Center, Florida. October 2009-October 2015
Conduct studies of Kennedy Space Center vegetation, fire ecology, and restoration of scrub and wetlands vegetation. Conduct studies of rare plant distributions and ecology. Provide technical guidance to the Vegetation Studies Group. Maintain KSC Herbarium.

DYNAMAC CORPORATION
Technical Lead, Plant Ecologist, Kennedy Space Center, Florida. January 1995 - September 2009
Conduct studies of Kennedy Space Center vegetation, fire ecology, and restoration of scrub and wetlands vegetation. Conduct studies of rare plant distributions and ecology. Provide technical guidance to the Vegetation Studies Group. Maintain KSC Herbarium. Monitor scrub restoration efforts on Cape Canaveral Air Force Station. Directed studies of effects of rocket launches on Cape Canaveral Air Station. Directed study of threatened and endangered species on Patrick Air Force Base. Directed study of historical vegetation of the Indian River Lagoon Basin. Conducted studies of the flora and rare plants of Canaveral National Seashore. Conducted studies of the occurrence and distribution of rare scrub plants in Brevard County.

THE BIONETICS CORPORATION
Technical Lead, Plant Ecologist, Kennedy Space Center, Florida. 1993-1994.
Conducted studies of Kennedy Space Center vegetation, fire ecology, and restoration of scrub and wetlands vegetation. Provided technical guidance to the Vegetation Studies Group.

Plant Ecologist, Kennedy Space Center, Florida. 1982-1993.
Conducted studies of the vegetation of Kennedy Space Center in relation to environmental variables, successional patterns, fire effects, and space center operations. Contributed to studies of animal habitat use. Conducted studies of vegetation, exotic plants, and potential environmental impacts and coordinated studies of fire history and soil erosion on Vandenberg Air Force Base, California.

FLORIDA INSTITUTE OF TECHNOLOGY
Research Scientist, Plant Ecologist (part time). Melbourne, Florida. 1993-1995.
Brevard County Scrub Habitat Conservation Plan. Helped develop proposal to conduct study of scrub habitat in Brevard County in relation to Florida Scrub-Jay habitat requirements and other rare or declining scrub species. Specific duties include plant sampling protocol, scrub plant identification, report preparation, and graduate student training.

BREVARD COUNTY
Member, Environmentally Endangered Lands Selection and Management Committee (volunteer). 1990-Present.
Helped develop criteria for determination of environmentally endangered lands and priorities for acquisition. Examined numerous sites, prepared reports, and made recommendations regarding acquisition. Helped prepare proposals to State of Florida Conservation and Recreational Lands (CARL) Program, Florida Forever Program, and the Florida Community Trust. Helped develop management criteria and reviewed management plans. Conducted numerous site visits to examine management activities and requirements.

THE UNIVERSITY OF TENNESSEE
Graduate Research Assistant, Ecology Program, Knoxville, Tennessee, 1979-1982.
National Park Service Obed River Vegetation Project. Conducted vegetation survey, prepared vegetation map, conducted survey for endangered and threatened plants and critical plant habitats, prepared floristic list, and prepared report.

National Park Service contract to H.R. DeSelm: Classification of the Vegetation of the Interior Low Plateau. Helped to gather and synthesize literature on vegetation of the Interior Low Plateau and to prepare report.

National Park Service contract to H.R. DeSelm: Evaluation of Five Potential National Natural Landmarks in Tennessee. Helped to gather field data and available information on topography, geology, soils, and vegetation of five proposed National Natural Landmarks in Tennessee.

Hilton Smith Fellowship, 1978-1979.

Graduate Teaching Assistant, 1977-1978.
Taught general biology, prepared lectures and conducted labs.

Non-Service Fellowship, 1976-1977.

PROJECT HISTORY:
National Aeronautics and Space Administration, Kennedy Space Center, 1982-Present. Principal investigator. Designed and implemented vegetation monitoring program for Kennedy Space Center, Florida including long-term studies of changes after fire. Conduct studies of effects of Space Shuttle launches on terrestrial vegetation and soils and help maintain long-term databases of launch deposition patterns.

National Aeronautics and Space Administration, Kennedy Space Center, 1992-Present. Principal investigator. Collaborate on the design and implementation of a scrub restoration program for Kennedy Space Center. Monitor vegetation changes after combinations of cutting and burning to restore long-unburned scrub habitat. Monitor survival and growth of scrub species planted in former agricultural sites.

*National Aeronautics and Space Administration, Kennedy Space Center, and U.S. Fish and Wildlife Service, Merritt Island National Wildlife Refuge. 2010-2011.*Principal investigator. Design and implement program monitoring vegetation response to restoration of hardwood swales in

scrub and flatwoods landscapes on Kennedy Space Center/Merritt Island National Wildlife Refuge.

U.S. Air Force, 45th Space Wing, 2010-2011. Co-investigator. Compile floristic inventory of selected wetlands areas on Cape Canaveral Air Force Station as part of a comprehensive survey of flora and fauna.

National Park Service, Canaveral National Seashore, 2002-2004. Principal investigator. Compile floristic inventory and survey for threatened and endangered plants on Canaveral National Seashore, Florida.

Brevard County Natural Resources Management Office, 2004-2005. Principal investigator. Conduct surveys for threatened and endangered scrub plants in Brevard County, Florida.

Brevard County Natural Resources Management Office, 2003-2004. Principal investigator. Conduct surveys for selected threatened and endangered plants in Brevard County, Florida.

U.S. Air Force, 45th Space Wing, 1998-2003. Principal investigator. Designed and coordinated the implementation of a scrub restoration program for Cape Canaveral Air Force Station, Florida. Monitored vegetation changes after combinations of cutting and burning to restore long-unburned scrub habitat.

National Aeronautics and Space Administration, Kennedy Space Center, Remediation Program, 1998-2000. Co-principal investigator. Helped to design and implement baseline chemical characterization study for Kennedy Space Center, Florida. Responsible for technical direction of soil and groundwater sections of the study.

U.S. Air Force, 45th Space Wing, 1995-1998. Principal investigator. Coordinated and helped to design program to monitor effects of Delta, Atlas, and Titan rocket launches on the environment of Cape Canaveral Air Force Station, Florida.

U.S. Air Force, 45th Space Wing, 1995-1997. Principal investigator. Coordinated and helped to design threatened and endangered species survey for Patrick Air Force Base, Florida.

St. Johns River Water Management District, 1995-1997. Co-principal investigator. Coordinated and helped to design project to map historical vegetation of the Indian River Lagoon Basin, Florida

GRADUATE STUDENT COMMITTEES:

Shannon Boyle, Florida Institute of Technology, M. S. Biology, December 1996
Theresa K. Burcsu, University of North Carolina Chapel Hill, M. A. Geography, July 1998
Lisa Earnest, University of South Florida, M.S. Marine Science, University of South Florida, December 1998

PROFESSIONAL SERVICE

Florida Native Plant Society: Chair, Science Advisory Committee, 2006-Present
Southern Appalachian Botanical Society: Editor, *Castanea*, 2001-2003
Southeastern Chapter, Ecological Society of America: Vice-Chair, 1993-1995; Secretary-Treasurer, 2000-2002; Chair, 2002-2004

PROFESSIONAL ACTIVITIES

American Association for the Advancement of Science

American Institute of Biological Sciences
Association of Southeastern Biologists
Brevard County Environmentally Endangered Lands Selection and Management Committee.
Ecological Society of America
Florida Academy of Science
Florida Native Plant Society
International Association for Vegetation Science
International Association for Wildland Fire
Natural Areas Association
Society of Wetland Scientists
Southern Appalachian Botanical Society
Tennessee Academy of Science
Torrey Botanical Society

CERTIFICATIONS

Certified Senior Ecologist, Ecological Society of America, 1994-Present

HONORS

Florida Native Plant Society, Silver Palmetto Award, 2018
Florida Native Plant Society, Silver Palmetto Award, 2009
Florida Native Plant Society, Green Palmetto Award, 2005
The Nature Conservancy, Florida Chapter Conservation Colleague Award, 1995
NASA Manned Flight Awareness Award of Merit, 1989
Phi Kappa Phi, The University of Tennessee, 1982
H.P. Sturdivant Biology Award, Western Maryland College, 1976

PUBLICATIONS/TECHNICAL REPORTS/PRESENTATIONS

Published Papers:

Schmalzer, P.A., C.R. Hinkle, and H.R. DeSelm. 1978. Discriminant analysis of cove forests of the Cumberland Plateau in Tennessee. p. 62-86. In: P.E. Pope (ed.). Proceedings Central Hardwoods Forest Conference II. Purdue University, West Lafayette, Indiana.

Schmalzer, P.A., C.R. Hinkle, and H.R. DeSelm. 1980. Vegetation patterns in a section of the Obed Wild and Scenic River, Cumberland County, Tennessee. p. 256-272. In: H.E. Garrett and G.E. Cox (eds.). Proceedings Central Hardwood Conference III. University of Missouri, Columbia.

Schmalzer, P.A., T.S. Patrick, and H.R. DeSelm. 1985. Vascular flora of the Obed Wild and Scenic River, Tennessee. Castanea 50:71-88.

Provancha, M.J., P.A. Schmalzer, and C.R. Hall. 1986. Effects of the December 1983 and January 1985 freezing air temperatures on select aquatic poikilotherms and plant species of Merritt Island, Florida. Florida Scientist 49:199-2l2.

Hinkle, C.R., C.R. Hall, M.J. Provancha, P.A. Schmalzer, A.M. Koller, Jr., and W.M. Knott, III. 1988. The use of remotely sensed environmental data and geographic referenced data management for environmental impact assessments. Chemical Propulsion Information Agency (CPIA) Publication 485.

Schmalzer, P.A. 1988. Vegetation of the Obed River gorge system, Cumberland Plateau, Tennessee. Castanea 53:1-32.

Schmalzer, P.A. 1989. Vegetation and flora of the Obed River gorge system, Cumberland Plateau, Tennessee. Journal of the Tennessee Academy of Science 64:161-168.

Breininger, D.R. and P.A. Schmalzer. 1990. Effects of fire and disturbance on plants and birds in a Florida oak/palmetto scrub community. American Midland Naturalist 123:64-74.

Levine, J.S., W.R. Cofer, III, D.I. Sebacher, R.P. Rhinehart, E.L. Winstead, S. Sebacher, C.R. Hinkle, P.A. Schmalzer, and A.M. Koller, Jr. 1990. The effects of fire on biogenic emissions of methane and nitric oxide from wetlands. Journal of Geophysical Research 95:1853-1864.

Breininger, D.R., P.A. Schmalzer, and C.R. Hinkle. 1991. Estimating occupancy of gopher tortoise (*Gopherus polyphemus*) burrows in coastal scrub and slash pine. Journal of Herpetology 25:317-321.

Schmalzer, P.A., C.R. Hinkle, and A.M. Koller, Jr. 1991. Changes in marsh soils for six months after a fire. p. 272-286. In: J.S. Levine (ed.). Global Biomass Burning Atmospheric, Climatic, and Biospheric Implications. The MIT Press. Cambridge, Massachusetts.

Schmalzer, P.A. C.R. Hinkle, and J.L. Mailander. 1991. Changes in community composition and biomass in *Juncus roemerianus* Scheele and *Spartina bakeri* Merr. marshes one year after a fire. Wetlands 11:67-86.

Duncan, B.W. and P.A. Schmalzer.1992. Using ARC/INFO to monitor Space Shuttle launch effects and validate a spatial predictive model. p. 499-506. In: Proceedings of the Twelth Annual ESRI User Conference, Volume 1. Environmental Systems Research Institute, Inc. Redlands, California.

Schmalzer, P.A. and C.R. Hinkle. 1992. Recovery of oak-saw palmetto scrub after fire. Castanea 57:158-173.

Schmalzer, P.A. and C.R. Hinkle. 1992. Soil dynamics following fire in *Juncus* and *Spartina* marshes. Wetlands 12:8-21.

Schmalzer, P.A. and C.R. Hinkle. 1992. Species composition and structure of oak-saw palmetto scrub vegetation. Castanea 57:220-251.

Hinkle, C.R., W. McComb, J.M. Safley, Jr., and P.A. Schmalzer. 1993. Mixed mesophytic forests. p. 203-253. In: W.H. Martin, S.G. Boyce, and A. C. Echternacht (eds.). Biodiversity of the Southeastern United States: Upland Terrestrial Communities. John Wiley & Sons, Inc., New York.

Schmalzer, P.A. and C.R. Hinkle. 1993. Effects of fire on nutrient concentrations and standing crops in biomass of *Juncus roemerianus* and *Spartina bakeri* marshes. Castanea 58:90-114.

Schmalzer, P.A., C.R. Hall, C.R. Hinkle, B.W. Duncan, W.M. Knott III, and B.R. Summerfield. 1993. Environmental monitoring of Space Shuttle launches at Kennedy Space Center: the first ten years. American Institute of Aeronautics and Astronautics Conference Paper AIAA93-0303. 16p.

Swain, H., C.R. Hinkle, and P.A. Schmalzer. 1993. Stewardship at the local level: a case study for Brevard County, Florida. p. 452-462. In: W.E. Brown and S.D. Veirs, Jr. (eds.). Partners in Stewardship: Proceedings of the 7th Conference on Research and Resource Management in Parks and on Public Lands. George Wright Society. Hancock, Michigan.

Breininger, D.R., P.A. Schmalzer, and C.R. Hinkle. 1994. Gopher tortoise (*Gopherus polyphemus*) densities in coastal scrub and slash pine flatwoods in Florida. Journal of Herpetology 28:60-65.

Duncan, B.W. and P.A. Schmalzer. 1994. Using a geographical information system for monitoring Space Shuttle Launches: determining cumulative distribution of deposition and an empirical test of a spatial model. Environmental Management 18:465-474.

Duncan, B.W., D.R. Breininger, P.A. Schmalzer, and V.L. Larson. 1995. Validating a Florida Scrub Jay habitat suitability model, using demography data on Kennedy Space Center. Photogrammetric Engineering and Remote Sensing 61:1361-1370.

Schmalzer, P.A. 1995. Biodiversity of saline and brackish marshes of the Indian River Lagoon: historic and current patterns. Bulletin of Marine Science 57:37-48.

Duncan, B. W., S. Boyle, P. A. Schmalzer and D. R. Breininger. 1996. Spatial quantification of historic landscape change within two study sites on John F. Kennedy Space Center. Proceedings of the Sixteenth Annual ESRI User Conference. Published on CD-ROM and on the World Wide Web at www.esri.com.

Schmalzer, P.A. and C.R. Hinkle. 1996. Biomass and nutrients in aboveground vegetation and soils of Florida oak-saw palmetto scrub. Castanea 61:168-193.

Schmalzer, P. A. B. W. Duncan, V. L. Larson, S. Boyle, and M. Gimond. 1996. Reconstructing historic landscapes of the Indian River Lagoon Basin. p. 849-854. In: Proceedings of Eco-Informa'96: Global Networks for Environmental Information, Volume 11. Environmental Research Institute of Michigan, Ann Arbor.

Schmalzer, P. A., and S. R. Boyle. 1998. Restoring long-unburned oak-saw palmetto scrub requires mechanical cutting and prescribed burning (Florida). Restoration & Management Notes 16(1):96-97.

Duncan, B.W., S. Boyle, D.R. Breininger, and P.A. Schmalzer. 1999. Coupling past management practice and historic landscape change on John F. Kennedy Space Center. Landscape Ecology 14:291-309.

Schmalzer, P.A., S.R. Boyle, and H.M. Swain. 1999. Scrub ecosystems of Brevard County, Florida: a regional characterization. Florida Scientist 62:13-47.

Duncan, B.W., V.L. Larson, and P.A. Schmalzer. 2000. Modeling historic landcover: an evaluation of two methodologies for producing baseline reference data. Natural Areas Journal 20(4):308-316.

Duncan, B.W. and P.A. Schmalzer. 2001. Modeling past and present fire behavior on Kennedy Space Center, Florida. Proceedings of the Twenty-first Annual ESRI User Conference. Published on CD-ROM and on the World Wide Web at www.esri.com.

Duncan, B.W. and P.A. Schmalzer. 2001. Spatial fire behavior modeling: simulating past and present fire spread distributions along the east coast of Central Florida. Pp. 8-11 *in* D. Zattau. (ed.). Proceedings of the Florida Scrub Symposium 2001. U.S. Fish and Wildlife Service. Jacksonville, Florida. 63 pp.

Schmalzer, P. A. and F. W. Adrian. 2001. Scrub restoration on Kennedy Space Center/Merritt Island National Wildlife Refuge, 1992-2000. Pp. 17-20 *in* D. Zattau. (ed.). Proceedings of the Florida Scrub Symposium 2001. U.S. Fish and Wildlife Service. Jacksonville, Florida. 63 pp.

Schmalzer, P. A., M. A. Hensley, and C. A. Dunlevy. 2001. Background characteristics of soils of Kennedy Space Center, Merritt Island, Florida: selected elements and physical properties. Florida Scientist 64:161-190.

Schmalzer, P. A. and M. A. Hensley. 2001. Background characteristics of groundwater in the Surficial Aquifer of Kennedy Space Center, Merritt Island, Florida. Florida Scientist 64: 250-273.

Duncan, B.W., P.A. Schmalzer, and T.E. Foster. 2002. Mapping shuttle launch clouds at KSC. GeoSpatial Solutions 12(11): 32-37.

Schmalzer, P.A., S.R. Turek, T.E. Foster, C.A. Dunlevy, and F.W. Adrian. 2002.Reestablishing Florida scrub in a former agricultural site: Survival and growth of planted species and changes in community composition. Castanea 67:146-160.

Duncan, B.W. and P.A. Schmalzer. 2003. Anthropogenic fuel alteration and changes in spatial fire behavior in a southeastern pyrogenic ecosystem. In: Proceedings of the Second International Wildland Fire Ecology and Fire Management Congress, American Meteorological Society, Published on CDROM and at http://www.ametsoc.org.

Foster, T.E. and P.A. Schmalzer. 2003. The effect of season of fire on the recovery of Florida scrub. In: Proceedings of the Second International Wildland Fire Ecology and Fire Management Congress, American Meteorological Society, Published on CDROM and at http://www.ametsoc.org.

Schmalzer, P.A. 2003. Growth and recovery of oak-saw palmetto scrub through ten years after fire. Natural Areas Journal 23:5-13.

Schmalzer, P.A. T. E. Foster, and F.W. Adrian. 2003. Responses of long-unburned scrub on the Merritt Island/Cape Canaveral barrier island complex to cutting and burning. In: Proceedings of the Second International Wildland Fire Ecology and Fire Management Congress, American Meteorological Society, Published on CDROM and at http://www.ametsoc.org.

Duncan, B.W. and P.A. Schmalzer. 2004. Anthropogenic influences on potential fire spread in a pyrogenic ecosystem of Florida. Landscape Ecology 19:153-165.

Duncan, B.W., V.L. Larson, and P.A. Schmalzer. 2004. Historic landcover and recent landscape change in the North Indian River Lagoon Watershed, Florida. Natural Areas Journal 24:198-215.

Alexis. M.A., D.P. Rassse, C. Rumpel, G. Bardoux, N. Pechot, P. Schmalzer, B. Drake, and A. Mariotti. 2007. Fire impact on C and N losses and charcoal production in a scrub oak ecosystem. Biogeochemistry 82(2): 201-216 (online DOI: 10.1007/s10533-006-9063-1).

Foster, T.E. and P.A. Schmalzer. 2012. Growth of *Serenoa repens* planted in a former agricultural site. Southeastern Naturalist 11(2): 331-336.

Foster, T.E., P.A. Schmalzer, and G.A. Fox. 2014. Timing matters: The seasonal effect of drought on tree growth. Journal of the Torrey Botanical Society.141: 225-241.

Duncan, B.W., P. A. Schmalzer, D. R. Breininger, and E.D. Stolen. 2015. Comparing fuels reduction and patch mosaic fire regimes for reducing fire spread potential: A spatial modeling approach. Ecological Modelling 314:90-99.

Foster, T.E., P.A. Schmalzer, and G. A. Fox. 2015. Seasonal climate and its differential impact on growth of co-occurring species. European Journal of Forest Research 134:497-510. DOI 10.1007/s10342-015-0867-1.

Schmalzer, P.A. and T.E. Foster. 2016. Flora and threatened and endangered plants of Canaveral National Seashore, Florida. Castanea 81(2):91-127.

Schmalzer, P.A. and T.E. Foster. 2018a. Dynamics of gaps created by burning in Florida oak-saw palmetto (*Quercus*, Fagaceae-*Serenoa repens*, Arecaceae) scrub. Journal of the Torrey Botanical Society 145(3):250-262.

Schmalzer, P.A. and T.E. Foster. 2018b. Restoration of scrub vegetation in an old field through 23 years after planting. Restoration Ecology doi: 10.1111/rec.12864.

Manuscripts in Press:

Manuscripts Submitted:

Foster, T. E., P. A. Schmalzer, and G.A. Fox. 2019. Distribution and physiological function of three co-occurring scrub oaks along a one meter gradient in elevation. Manuscript submitted to American Journal of Botany.

Technical Reports:

Schmalzer, P.A., C.R. Hinkle, and H.R. DeSelm. 1978. A report on the vegetation of Doe Creek Cove, White County, Tennessee. Processed report prepared for Tennessee State Heritage Program. Graduate Program in Ecology, The University of Tennessee, Knoxville. 19 p.

Schmalzer, P.A., C.R. Hinkle, and H.R. DeSelm. 1978. A report on the vegetation of Flint Fork Cove, Pickett State Forest, Pickett County, Tennessee. Processed report prepared for Tennessee State Heritage Program. Graduate Program in Ecology, The University of Tennessee, Knoxville. 12 p.

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EEL Program Qualifying Committee Initial Ranking

Committee Member: Committee

Applicant Name: Schmelzer

	Points
Minimum Qualifications: • Have a willingness to serve in a voluntary capacity. ✓Yes __No • Be willing to make a long-term commitment to the EEL Selection and Management Committee. ✓Yes __No • Have a post secondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum six (6) years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design. ✓Yes __No • Have demonstrated knowledge of Brevard County ecosystems and specific knowledge of the habitat types and conservation land management techniques. ✓Yes __No	
❖ *Does Applicant Meet Minimum Qualifications?* ✓Yes __No *Yes = 100 points No = 0 points* *Brief description of education, professional experience, and demonstrated knowledge of Brevard ecosystems:*	
Points: 100	
Additional Points: • Five (5) additional points are assigned for each graduate degree (Masters or Doctorate) in ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural areas sanctuary design.	
❖ *Does applicant earn additional points for education?* ✓Yes __No *Brief description:*	
Points: 10	
• And/or two (2) additional points for each year up to six (6) years for demonstrated professional expertise in biological or environmental sciences, OR a closely related conservation field as described above?	
❖ *Does applicant earn additional points for professional expertise?* __Yes __No *Brief description:*	
Points: 12	
Total Points 122	

Brevard County
Environmentally Endangered Lands (EEL) Program
Selection and Management Committee Volunteer Application

Applicant Contact Information

Name Lisa Toland

Mailing Address, Street 4092 Sparrow Hawk Road

City Melbourne Zip 32934

Phone 321-242-7173 Cell Phone 321-795-2553 Email teclisa@cfl.rr.com

Instructions

The EEL Selection and Management Committee serves as an expert volunteer scientific advisory committee to the County Commission on all issues involving the acquisition and management of environmentally endangered lands with the EEL Program protected area network in Brevard County.

Please complete the following information and ***include your resume as an attachment*** when submitting this application for consideration as a volunteer member of the Selection and Management Committee.

Questions

1. Please confirm your willingness to serve on the committee for a minimum term of two years.
   Yes ■ No ☐

2. Please provide a brief overview AND resume of your background and expertise related to the following committee member requirements:
   a. Four-year postsecondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum of 6 years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design.

   B.S. Chemistry from the Pennsylavania State University plus over 30 years of professional experience in field ecology, ecosystem management, land acquisition, geology, hydrology and facilities construction.

3. Please provide an overview of your demonstrated knowledge of Brevard County ecosystems, habitat types and conservation land management techniques.

   Please see attached resume for details. Experience with Brevard County's surficial and major geological formations; groundwater and surface water hydrology; natural community identification and assessment including marine environments; habitat creation, restoration, and enhancement as well as listed species surveys and habitat suitablity assessments. Additional experience in land acquisition and EEL Program policies and procedures.

4092 Sparrow Hawk Road
Melbourne, Florida 32934

321-795-2553
teclisa@cfl.rr.com

Lisa Toland

Relevant Experience for Brevard County Environmentally Endangered Lands Selection and Management Committee Volunteer Position.

4-year postsecondary academic degree

- B.S. Chemistry, 1985
- The Pennsylvania State University, University Park, PA

Demonstrated Professional Expertise

- 17 Years, President, Toland Environmental Consulting
- 4 Years, Director, Brevard County Natural Resources Management Department
- 6 Years, Assistant Department Head, Brevard County Solid Waste

Demonstrated Knowledge of Brevard County Ecosystems, habitat types and conservation land management techniques.

- As the lead ecologist for Toland Environmental Consulting:
    - Work within all of Brevard County's ecosystems and classify wetland, upland, marine and coastal habitats according to Florida Natural Areas Inventory's Guide to Natural Communities of Florida and the Florida Department of Transportation's Florida Land Use, cover and Forms Classification System.
    - Assess scrub habitat suitability for Florida Scrub-jays, conduct presence/absence surveys for jays, prepare habitat conservation plans, and manage scrub habitat.
        - Notable examples:
            - Capron Ridge 21-scre scrub management and restoration program prior to turning the property over to the Brevard County EELs Program.
            - Sandy Point 73.5-acre scrub restoration and creation program prior to turning the property over to the Brevard County EELs program.
    - Assess habitat suitability, conduct population surveys and relocate gopher tortoises by hand shoveling, bucket trapping, and backhoe excavation as an Authorized Agent for Florida Fish and Wildlife Conservation Commission (FWC).
    - Assess habitat suitability and conduct presence/absence surveys for Florida Grasshopper Sparrows.
    - Delineate wetlands and assess wetland functional values according to State and federal rules.
    - Design and implement wetland mitigation plans including wetland creation, restoration, enhancement and long-term exotic species management.
        - Notable examples:
            - Capron Ridge wetland creation and exotic species management.
            - Brevard County EELs Grant Flatwoods Sanctuary wetland creation, restoration and enhancement program.

        - Bull Creek wetland and floodplain restoration and enhancement.
    - Conduct seagrass and submerged aquatic vegetation surveys.
    - Act as an FWC approved manatee observer for projects involving in-water work in known manatee aggregation areas and travel corridors.
    - Conduct biological monitoring programs for bald eagle nesting sites.
    - Use ArcGis Desktop software and prepare GIS maps.
- As the Director of Brevard County Natural Resources
    - Prepared, amended, interpreted and enforced Brevard County's Comprehensive Plan and environmental land development regulations.
    - Oversaw, provided staff support and coordinated with the Nature Conservancy for the Brevard County's Environmentally Endangered Lands program.
        - Obtained working knowledge of EEL's Land Acquisition Manual (LAM), EELs Selection and Management Committee and EELs Procedures Committee.
    - Oversaw County staff conducting the initial scrub habitat surveys and occupancy assessments and obtained federal funding and local municipalities support to explore the creation of Countywide Habitat Conservation Plan for Florida Scrub-Jays.
    - Obtained local municipalities support for the creation of a countywide manatee protection plan.
    - Represented all 67 Florida counties for the Florida Local Environmental Regulators Association (FLERA) on the governor's technical advisory committee for the creation of the Florida's single wetland definition and wetland delineation rule.
    - Sat on the East Central Florida Regional Planning Council's technical advisory committee for the creation of the Regional Wetland Buffer Rule for Developments with Regional Impacts.
    - Oversaw the initial engineering and cost sharing studies to begin Brevard's beach renourishment programs.
    - Created Brevard County's sea turtle lighting ordinance and compliance program.
    - Reviewed and approved contamination assessment reports and remedial action plans for petroleum contaminated sites including assessing the local geology, soil profiles, vertical and horizonal permeability rates and ponding and drawdown effects on the hydrology of adjacent environmental resources including wetlands.
- As the Assistant Department Head of Brevard County Solid Waste:
    - Coordinated the construction of more than 20 million dollars in new solid waste facilities including procuring engineers and contractors, acquiring property, obtaining proper zoning, performing public relations, assisting in facility design, obtaining all environmental, building and construction permits, and implementing environmental mitigation plans.

EEL Program Qualifying Committee Initial Ranking **Committee Member:** Committee

Applicant Name: Toland	Points
Minimum Qualifications: • Have a willingness to serve in a voluntary capacity. ✓Yes __No • Be willing to make a long-term commitment to the EEL Selection and Management Committee. ✓Yes __No • Have a post secondary academic degree (B.S. or equivalent) in biological or environmental sciences or demonstrated professional expertise (minimum six (6) years) in a closely related conservation field such as ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural area sanctuary design. __Yes ✓No • Have demonstrated knowledge of Brevard County ecosystems and specific knowledge of the habitat types and conservation land management techniques. ✓Yes __No	
❖ *Does Applicant Meet Minimum Qualifications?* ✓Yes __No *Yes = 100 points No = 0 points* *Brief description of education, professional experience, and demonstrated knowledge of Brevard ecosystems:*	
Points:	100
Additional Points: • Five (5) additional points are assigned for each graduate degree (Masters or Doctorate) in ecosystem management, natural resources conservation, aquatic biology, field ecology, marine biology, botany, geology, hydrology, fire ecology, natural areas management, human use and recreation in natural areas, science education, or natural areas sanctuary design.	
❖ *Does applicant earn additional points for education?* __Yes __No *Brief description:*	
Points:	ø
• And/or two (2) additional points for each year up to six (6) years for demonstrated professional expertise in biological or environmental sciences, OR a closely related conservation field as described above?	
❖ *Does applicant earn additional points for professional expertise?* __Yes __No *Brief description:*	
Points:	12
Total Points	112