pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

COORDINATION OF A WELL LOCATION WITH PUBLIC RESOURCES (Unconventional Operations Only)

A. OPERATOR AND WELL INFORMATION

Well Operator Rice Drilling B LLC		DEP ID / OGO No. 39054		Well Site Name and No. Piston Honda 10
Address 2200 Energy Drive				Well Pad Name and No. Piston Honda 10
City Canonsburg	State PA	Zip Code 15317	Latitude (DD) 39.792339	Longitude (DD) - 80.502833
Telephone No. 724-271-7200	Fax No. 724-749-5581		Email espine@eqt.com	

B. WELL LOCATION PROXIMITY TO PUBLIC RESOURCES

1) Within 200 feet of a publicly owned park, forest, game land, or wildlife area?
☐ Yes ☒ No

2) In or within the corridor of a state or national scenic river?
☐ Yes ☒ No

3) Within 200 feet of a national natural landmark?
☐ Yes ☒ No

4) Location will impact other critical communities?
☒ Yes ☐ No

5) Within 200 feet of a historical or archeological site on a federal/state list of historical places?
☐ Yes ☒ No

6) Within Zones 1 or 2 of a wellhead protection area approved under Section 109.713.
☐ Yes ☒ No

7) Within 200 feet of common areas on a school's property or playground?
☐ Yes ☒ No

8) **Wells**, within 1000 feet of water wells, surface water intakes, reservoirs, or other water supply extraction points used by a water purveyor?
☐ Yes ☒ No

If all the answers to questions 1 thru 8 are "No," proceed to Section C

C. RESOURCE AGENCY COORDINATION

List each public resource identified in SECTION B above with its name and location.

Public Resource 1

Public Resource Name: *Passiflora lutea* and *Smallanthus uvedalius*	Location: Proposed well site
Public Resource Agency Name: PA Department of Conservation and Natural Resources	Contact Person: Jason Ryndock
Contact Address and Telephone No.: P.O. Box 8552 Harrisburg, PA 17015-8552 / (717) 705-2822	
Contact Email: c-jryndock@pa.gov	

Describe functions and uses of the public resource.
Endangered and rare plant species.

Describe the measures proposed to be taken to avoid, minimize or otherwise mitigate impacts.
Survey with relocation recommendation; relocation; reporting; monitoring after one year

Date of Notification 6/19/2015; 7/21/2015; 6/23/2016
Attach Proof of Notification

Did the Public Resource Agency Respond ☒ Yes ☐ No
If yes, provide the response with this form.

Public Resource 2

Public Resource Name	Location
Public Resource Agency Name	Contact Person

Contact Address and Telephone No.

Contact Email

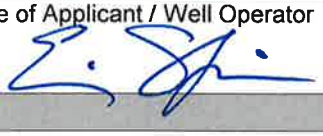
Describe functions and uses of the public resource.

Describe the measures proposed to be taken to avoid, minimize or otherwise mitigate impacts.

Date of Notification
Attach Proof of Notification

Did the Public Resource Agency Respond ☐ Yes ☐ No
If yes, provide the response with this form.

D. APPLICANT SIGNATURE

Signature of Applicant / Well Operator	Print or Type Signer's Name and Title	Date
	Erin Spine, Regional Land Supervisor	2/28/2018

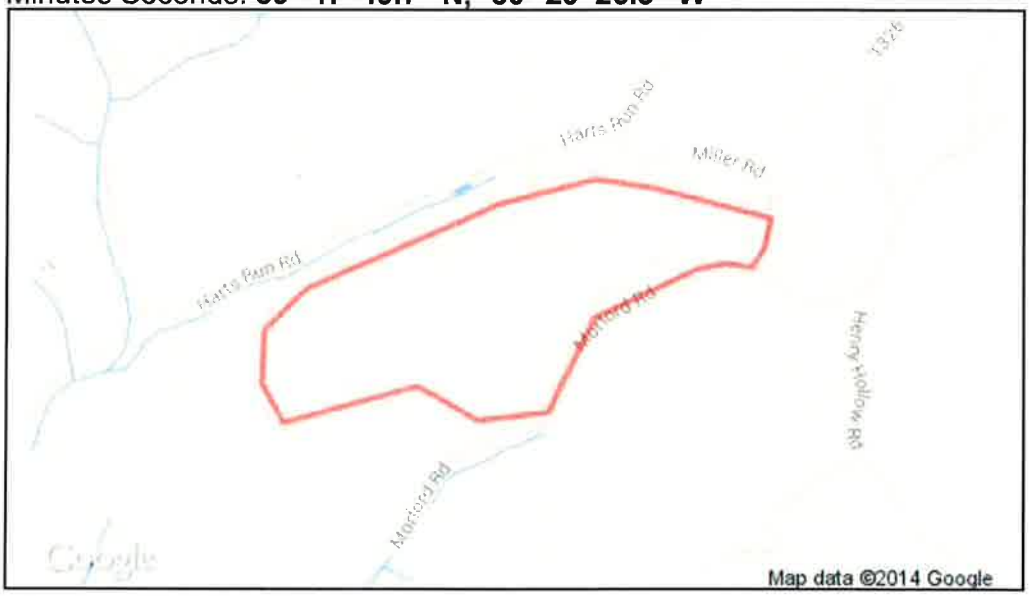
DEP USE ONLY

☐ Approved ☐ Denied DEP Representative	Conditions ☐ YES, see below or attached ☐ NO	Date

Conditions

1. PROJECT INFORMATION

Project Name: **Piston Honda Well Site**
Date of review: **10/30/2014 1:43:20 PM**
Project Category: **Energy Storage, Production, and Transfer,Energy Production (generation),Oil or Gas - new wells, expansion of well field**
Project Area: **244.2** acres
County: **Greene** Township/Municipality: **Springhill,Aleppo**
Quadrangle Name: **CAMERON (WV)** ~ ZIP Code: **15310,15352**
Decimal Degrees: **39.797140 N, -80.490640 W**
Degrees Minutes Seconds: **39° 47' 49.7" N, -80° 29' 26.3" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Passiflora lutea
Common Name: Passion-flower
Current Status: Endangered
Proposed Status: Threatened

Scientific Name: Smallanthus uvedalius
Common Name: Leaf-cup
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictinal agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____Project location information (name of USGS Quadrangle, Township/Mu?icipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Endangered Species Section
315 South Allen Street, Suite 322, State College, PA. 16801-4851
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Michael J Benson
Company/Business Name: Dietfenbauch & Hritz
Address: 1095 Chaplin Road, Suite 200
City, State, Zip: Morgantown, WV 26501
Phone:(304) 985-5555 Fax:(304) 985-5557
Email: mbenson@dandhengineers.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

01/06/2015
date

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

January 16, 2015 **PNDI Number: 20141030472392**

Michael J. Benson
Dieffenbauch & Hritz
1095 Chaplin Road, Suite 200
Morgantown, WV 26501
Email: mbenson@dandhengineers.com (hard copy will not follow)

Re: Rice Drilling B, LLC – Piston Honda Well Site
Springhill and Aleppo Township, Greene County, PA

Dear Mr. Benson,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 20141030472392 for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

Potential Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the project vicinity. Based on a detailed PNDI review, DCNR determined potential impacts to the following threatened or endangered species or species of special concern.

Scientific Name	Common Name	PA Current Status	PA Proposed Status
Passiflora lutea	Yellow Passion-flower	Endangered	Threatened
Smallanthus uvedalius	Leaf-cup	Rare	Rare

Survey Request
DCNR requests a survey for the following species:

- ***Passiflora lutea* (Yellow Passion-flower):** locally documented on an east-facing hilltop; prefers moist stream bank thickets and wooded slopes; flowers in July
- ***Smallanthus uvedalius* (Leaf-cup):** locally documented in a roadside opening in mixed deciduous forest (along Morford Road); prefers ravines, thickets, and river or stream banks; flowers July – September

✓ A survey for the above species should be conducted by a qualified botanist *at the appropriate time of year and then submitted to our office for review*. **Your botanist should carefully review the new DCNR Botanical Survey Protocols available at http://www.gis.dcnr.state.pa.us/hgis-er/Login.aspx. These protocols are recommended to ensure that the all necessary information is collected and that survey reports are prepared properly. It is the expectation of DCNR that these protocols will be followed when conducting surveys for species under our jurisdiction.**

✓ Your botanist should *fill out the field survey form while performing their survey:* http://www.gis.dcnr.state.pa.us/hgis-er/hgis/2012%20DCNR%20Field%20Survey%20Form.pdf. Contact our office prior to the survey for detailed information about the species, or for a list of qualified surveyors.

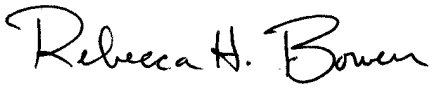
✓ Any target and non-target state-listed species found during the site visit should be reported to our office. Mitigation measures and monitoring may be requested if species or communities of special concern are found on or adjacent to site.

- ✓ If the land type(s) does not exist on site, a survey may not be necessary; please submit a habitat assessment report which describes the current land cover, habitat types, and species found on site.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Jason Ryndock, Ecological Information Specialist, by phone (717-705-2822) or via email (c-jryndock@pa.gov).

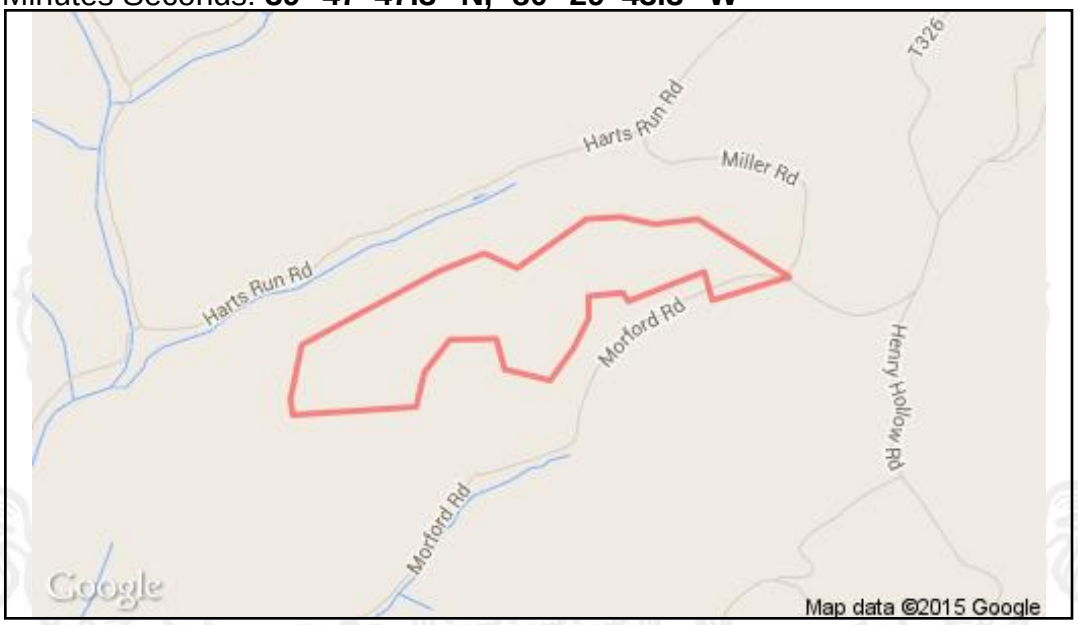
Sincerely,



Rebecca H. Bowen, Section Chief
Bureau of Forestry, Ecological Services Section
Pennsylvania Natural Heritage Program

1. PROJECT INFORMATION

Project Name: **Piston Honda Well Site**
Date of review: **5/20/2015 12:22:11 PM**
Project Category: **Energy Storage, Production, and Transfer,Energy Production (generation),Oil or Gas - new wells, expansion of well field**
Project Area: **130.0** acres
County: **Greene** Township/Municipality: **Aleppo,Springhill**
Quadrangle Name: **CAMERON (WV)** ~ ZIP Code: **15310,15352**
Decimal Degrees: **39.796480 N, -80.495371 W**
Degrees Minutes Seconds: **39° 47' 47.3" N, -80° 29' 43.3" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

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PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Passiflora lutea
Common Name: Passion-flower
Current Status: Endangered
Proposed Status: Threatened

Scientific Name: Smallanthus uvedalius
Common Name: Leaf-cup
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictinal agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____Project location information (name of USGS Quadrangle, Township/Municipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101, State College, PA 16801
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Joseph B. Daft
Company/Business Name: Dieffenbauch & Hritz
Address: 1095 Chaplin Rd. Suite 200
City, State, Zip: Morgantown,WV,26501
Phone:(276) 525-4224 Fax:(304) 985-5557
Email: jdaft@dandhengineers.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Joseph B. Daft — applicant/project proponent signature
05/20/2015 — date

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

July 2, 2015 **PNDI Number: 20141030472392**

Vincent Attardi
Dieffenbauch & Hritz
1095 Chaplin Road, Suite 200
Morgantown, WV 26501
Email: vattardi@dandhengineers.com (hard copy will not follow)

Re: Piston Honda Well Site – Botanical Report
Springhill and Aleppo Townships, Greene County, PA

Dear Mr. Attardi,

Thank you for the submission of your field survey for Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 20141030472392 for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated per Survey (with Mitigation and Monitoring)

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. DCNR requested a survey for *Passiflora lutea* (yellow passionflower) and *Smallanthus uvedalius* (leaf-cup) on January 16, 2015. Botanical surveys were conducted by Dieffenbauch & Hrtiz, LLC (D&H) on June 2, 8, and 11, 2015.

Two populations of leaf-cup were documented within the project limit-of-disturbance. Neither population can be avoided. D&H has proposed to transplant both populations to suitable habitat at another location onsite, approximately 25 feet from the edge of the limit-of-disturbance. A single monitoring event is requested one (1) year following the leaf-cup relocation to document survivorship. Please submit a brief report in the future detailing the monitoring event. With the addition of these measures, DCNR has determined that no impact is likely.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Jason Ryndock, Ecological Information Specialist, by phone (717-705-2822) or via email (c-jryndock@pa.gov).

Sincerely

Greg Podniesinski

Greg Podniesinski, Section Chief
Natural Heritage Section

DIEFFENBAUCH & HRITZ, LLC
1095 Chaplin Hill Road Suite 200
Morgantown, WV 26501
Office: 304-985-5555
Fax: 304-985-5557

June 19, 2015

Mr. Jason Ryndock
Ecological Information Specialist
Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry Natural Heritage Section
400 Market Street
Harrisburg, Pennsylvania 17105

RE: **Botanical Survey Report**
Piston Honda Well Site
Greene County, Pennsylvania
PNDI #: 20141030472392
Project #: 1421024

Dear Mr. Ryndock,

Dieffenbauch & Hritz, LLC (D&H) is pleased to submit the attached Botanical Survey Report for the Piston Honda Well Site project on behalf of Rice Drilling B, LLC. Environmental Scientists from D&H performed a botanical survey for leaf-cup (*Smallanthus uvedalius*) and yellow passion-flower (*Passiflora lutea*) within the confines of the limits of investigation (LOI). Field work was conducted on June 2, 8, and 11, 2015.

The LOI is located north of Morford Road in Aleppo Township, Greene County, Pennsylvania. The LOI is approximately 50.28 acres in size and encompasses the limits of disturbance (LOD) of the proposed project.

Two locations of leaf-cup were located within the LOD. One location contains four individuals and the second location contains one isolated individual. No individuals or populations of yellow passion-flower were located during the botanical survey. No other individual or populations of species of special concern were located during the botanical survey. The two leaf-cup populations should be relocated to a southern aspect slope adjacent to the LOD.

D&H would like to thank you for your timely and professional review and concurrence of this report and its findings. If any questions or concerns should arise, please do not hesitate to contact me or Michael Tincher.

Sincerely,
DIEFFENBAUCH & HRITZ, LLC

Vincent J. Attardi
Environmental Services Leader
vattardi@dandhengineers.com

Michael Tincher
Environmental Scientist
mtincher@dandhengineers.com

BOTANICAL SURVEY REPORT

for the

PISTON HONDA WELL SITE

Greene County, Pennsylvania

Prepared for:

Rice Drilling B, LLC
400 Woodcliff Drive
Canonsburg, PA 15317

Prepared by:

DIEFFENBAUCH & HRITZ
1095 Chaplin Road, Suite 200
Morgantown, West Virginia 26501

June 2015

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APPENDICES

1 INTRODUCTION

Dieffenbauch & Hritz (D&H) was requested by the Pennsylvania (PA) Department of Conservation and Natural Resources (DCNR) to perform a botanical survey for the Piston Honda Well Site project. The purpose of the survey was to determine if leaf-cup (*Smallanthus uvedalius*) or yellow passion-flower (*Passiflora lutea*) were present. The proposed Piston Honda Well Site project consists of the construction of a well pad and other facilities vital to its construction and operation.

The project is located north of Morford Road (Rd) in Aleppo Township, Greene County, PA. The limits of investigation (LOI) for the botanical survey include an approximate 50.28 acre tract of land, which includes the limits of disturbance (LOD) for the proposed project. D&H utilized the original USGS 7.5-Minute Topographic Map series (1945-1992), as recent digital topographic maps omit important features. The scene of the Cameron and New Freeport Quadrangles shows the majority of the LOI is unforested with various forested areas throughout. The eastern extent of the LOI consists of moderate hillslopes with a southern aspect. The remainder of the site is situated along a ridge with moderate sideslopes (**Appendix A, Figure 1**).

Environmental Scientists Vincent Attardi, Michael Tincher, Laura Calvert, and Caleb Sullivan conducted a botanical survey on June 2, 8, and 11, 2015 in response to the Pennsylvania Natural Diversity Inventory (PNDI) Project Environmental Review Receipt Number 20141030472392 for the Piston Honda Well Site project (**Appendix B**).

The PNDI Project Environmental Review Receipt required further review and correspondence with the PADCNR (**Appendix C**). Further coordination with the PADCNR revealed a survey was necessary for leaf-cup and yellow passion-flower. Per the PADCNR Survey Request, a presence/absence survey was completed in June 2015 (**Appendix D**). Leaf-cup generally flowers July through September. It has been locally documented in a roadside opening in mixed deciduous forest along Morford Rd. Leaf-cup prefers ravines, thickets, and river or stream banks. Yellow passion-flower typically flowers in July. It has been locally documented on an east-facing hilltop. Yellow passion-flower prefers moist stream bank thickets and wooded slopes.

2 METHODOLOGY

D&H researched information available from maps and publicly available datasets to determine the likelihood of species of special concern (SOSC) or habitat occurrence for the site. These resources provided information on landscape, soils, hydrology, land cover, and unique habitats. This effort allowed D&H to create a biophysical profile to aid in the determination of the likelihood of occurrence of SOSC. Field surveys were used to validate this landscape-level assessment and to supplement information publicly obtained.

The proposed site was visited in June to identify and document any leaf-cup and/or yellow passion-flower and their suitable habitats. The botanical survey area was carefully searched using a meander-type survey. The surveyors were equipped with a Trimble sub-meter Global Positioning System (GPS) unit, pertinent field guides, field forms, and a digital camera in order to document existing plant communities and any rare plant populations and their habitats. During the survey, several botanical survey points (BSP) were collected to document dominant vegetative species composition, habitat condition, and evidence of past disturbance to provide an overall community characterization within each habitat type. This data was used to complete Botanical Field Survey Forms for Environmental Review (**Appendix E**). The survey was completed as outlined in the *Protocols for Conducting Surveys for Plant Species of Special Concern: Section 2, Conducting a Survey* provided by the PADCNR. The BSPs and habitat type areas are illustrated on the Botanical Survey Map (**Appendix A, Figure 2**).

3 RESULTS

The proposed project area is primarily along a forested ridge. The eastern portion of the site abuts Morford Rd and extends along a forested hillslope. Photographs representing each habitat type and existing site conditions are included in **Appendix F**. A species list of all plants identified on the site is included in **Appendix G.**

Habitat 1: (BSP1, 6, and 7, Photographs 1-6) Habitat 1 is a mixed deciduous forest hillslope with an open understory. This habitat type is primarily located in the eastern portion of the LOI and generally faces south. A smaller portion of Habitat 1 is located in the western edge of the LOI and faces southeast. The tree canopy primarily consists of sugar maple (*Acer saccharum*) and red maple (*Acer rubrum*) and comprises approximately 85% vegetative cover. The tree sub-canopy stratum contains sassafras (*Sassafras albidum*), slippery elm

(*Ulmus rubra*), and sugar maple, with 30% vegetative cover. Shrub species made up 20% vegetative cover and includes spicebush (*Lindera benzoin*) and multiflora rose (*Rosa multiflora*). Common herbaceous species in this habitat include white snakeroot (*Ageratina altissima*) and Virginia creeper (*Parthenocissus quinquefolia*). One individual leaf-cup was located on the western portion of the LOI (BSP7). The immediate vicinity around the plant receives filtered light due to red maple in the tree canopy. Herbaceous vegetation is relatively sparse compared to the rest of the site. Herbaceous vegetation around the leaf-cup individual includes white snakeroot, Canadian honewort (*Cryptotaenia canadensis*), and shinning bedstraw (*Galium concinnum*). No other individuals or populations of leaf-cup were located in this habitat type. No individuals or populations of yellow passion-flower or other SOSC were located within this habitat type.

Habitat 2: (BSP2 and 5, Photographs 6 and 7) Habitat 2 is a mixed deciduous forest ridge with an open understory. This habitat types comprises the majority of the LOI. This habitat type consists of dry-mesic soils. Common tree canopy species within this habitat include sugar maple, red oak (*Quercus rubra*), and black cherry (*Prunus serotine*) and comprises approximately 90% vegetative cover. The tree sub-canopy consists of sugar maple and bitternut hickory (*Carya cordiformis*), which comprises 20% vegetative cover. The shrub strata consist of intermittent locations of spicebush and multiflora rose. Common herbaceous species in this habitat include spotted lady's thumb (*Persicaria maculosa*), white snakeroot, and Christmas fern (*Polystichum acrostichoides*). Summer grape (*Vitis aestivalis*) is also located throughout this habitat type. There were no individuals or populations of SOSC located within this habitat type.

Habitat 3: (BSP3, Photograph 8) Habitat 3 is a mixed deciduous forest ridge with a thick understory. This habitat type comprises a small portion of the LOI near the center. Common species within the tree canopy stratum include black walnut (*Juglans nigra*) and black cherry and comprises 40% vegetative cover. The tree sub-canopy is dominated by black cherry and slippery elm, with 20% vegetative cover. The shrub strata are densely vegetated with spicebush composing 70% vegetative cover. The forest floor receives partial light and is dominated by Christmas fern and catchweed (*Galium aparine*). There were no individuals or populations of SOSC located within this habitat type.

Habitat 4: (BSP4, Photographs 9-12) Habitat 4 is within a forest with a partial canopy and open understory with a disturbed edge. This habitat type has an active ATV trail transecting

it. The habitat type comprises a small portion of the LOI near the center. The tree canopy primarily consists of black walnut and bitternut hickory and comprises approximately 35% vegetative cover. Multiflora rose was the dominant species within the shrub strata with 15% vegetative cover. Common herbaceous species in this habitat include Japanese stiltgrass (*Microstegium vimineum*), Pennsylvania smartweed (*Polygonum pensylvanicum*), and deertongue (*Dichanthelium clandestinum*). One population leaf-cup was located in this habitat (BSP4). The population is comprised of four individuals. The population is located in a disturbed area. It is less than one foot from an active ATV trail. The immediate vicinity around the plant receives partial light. Herbaceous vegetation around the leaf-cup individual includes Pennsylvania smartweed, deertongue, and Japanese stiltgrass. No other individuals or populations of leaf-cup were located in this habitat type. No individuals or populations of yellow passion-flower or other SOSC were located within this habitat type.

4 JUSTIFICATIONS AND RECOMMENDATIONS

There are two locations of leaf-cup within the LOI. One location consists of an isolated individual, while the other is a population of four individuals. Per the site design, both populations are unavoidable. D&H recommends relocating both populations to another location on-site. The proposed relocation area will be upslope of the LOD along a southern aspect. The plants will be placed approximately 25 feet from the edge of the LOD before the start of construction. The leaf-cup will likely thrive in this area after construction due to its proximity to a disturbed edge between a cleared access road and mixed deciduous forest. The proposed relocation area is shown on the Botanical Survey Map.

No individuals or populations of yellow passion-flower were located during the botanical survey. No other individual or populations of SOSC were located during the botanical survey.

5 REFERENCES

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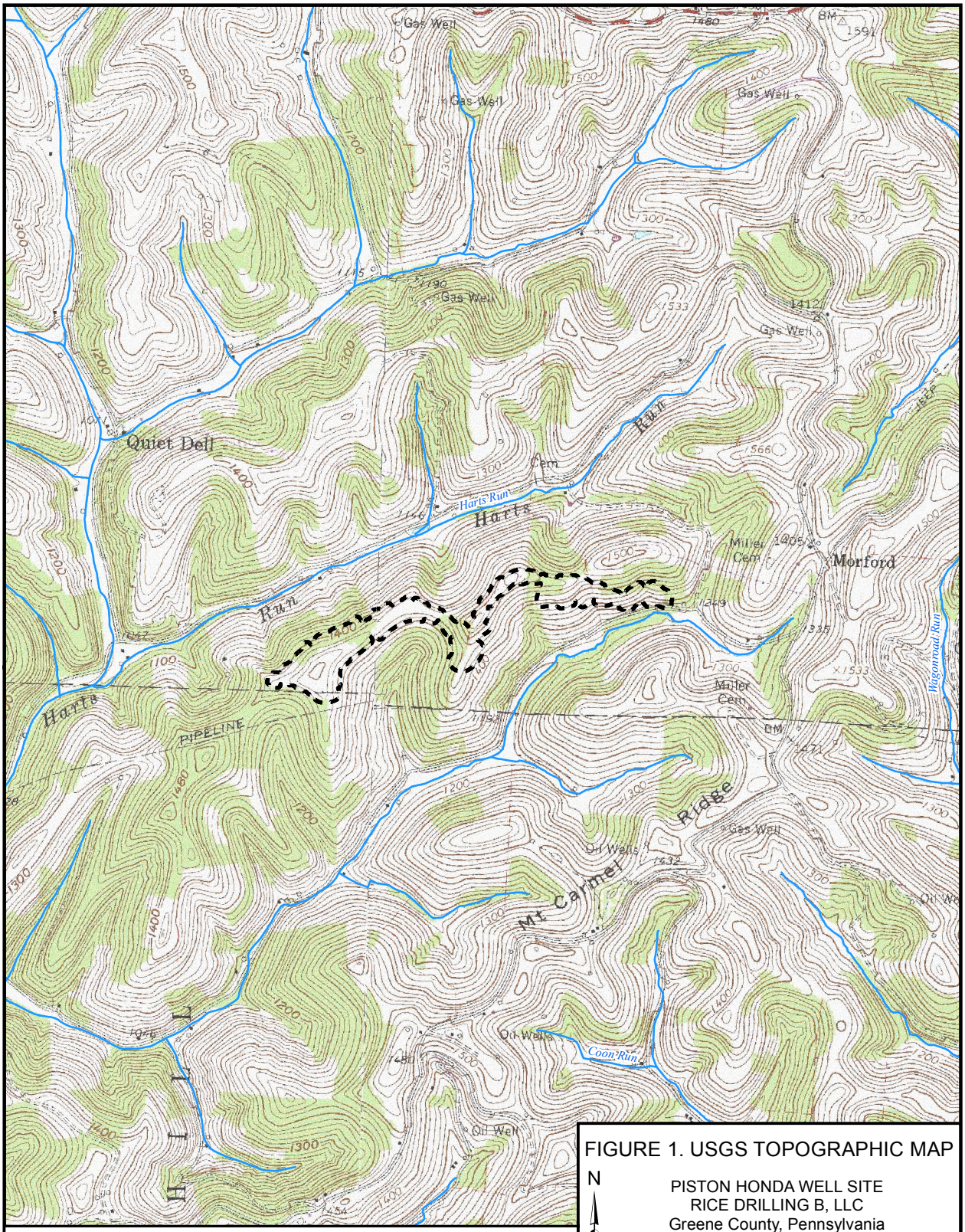
APPENDIX A

FIGURES



Reference: USGS 7.5 Minute Series- Cameron and New Freeport Quad, PA
Absolute Scale: 1:24,000

Text Scale: 1 inch = 2,000 feet

0 1,000 2,000 Feet

Legend

NHD Stream

Limits of Investigation

FIGURE 1. USGS TOPOGRAPHIC MAP

N

PISTON HONDA WELL SITE
RICE DRILLING B, LLC
Greene County, Pennsylvania

prepared by
DIEFFENBAUCH & HRITZ
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P: 304.985.5555 F: 304.985.5557

Document Path: K:\Rice Energy\2014\1421024 - Piston Honda (Beta 18)\Mapping\PistonHondaUSGS.mxd

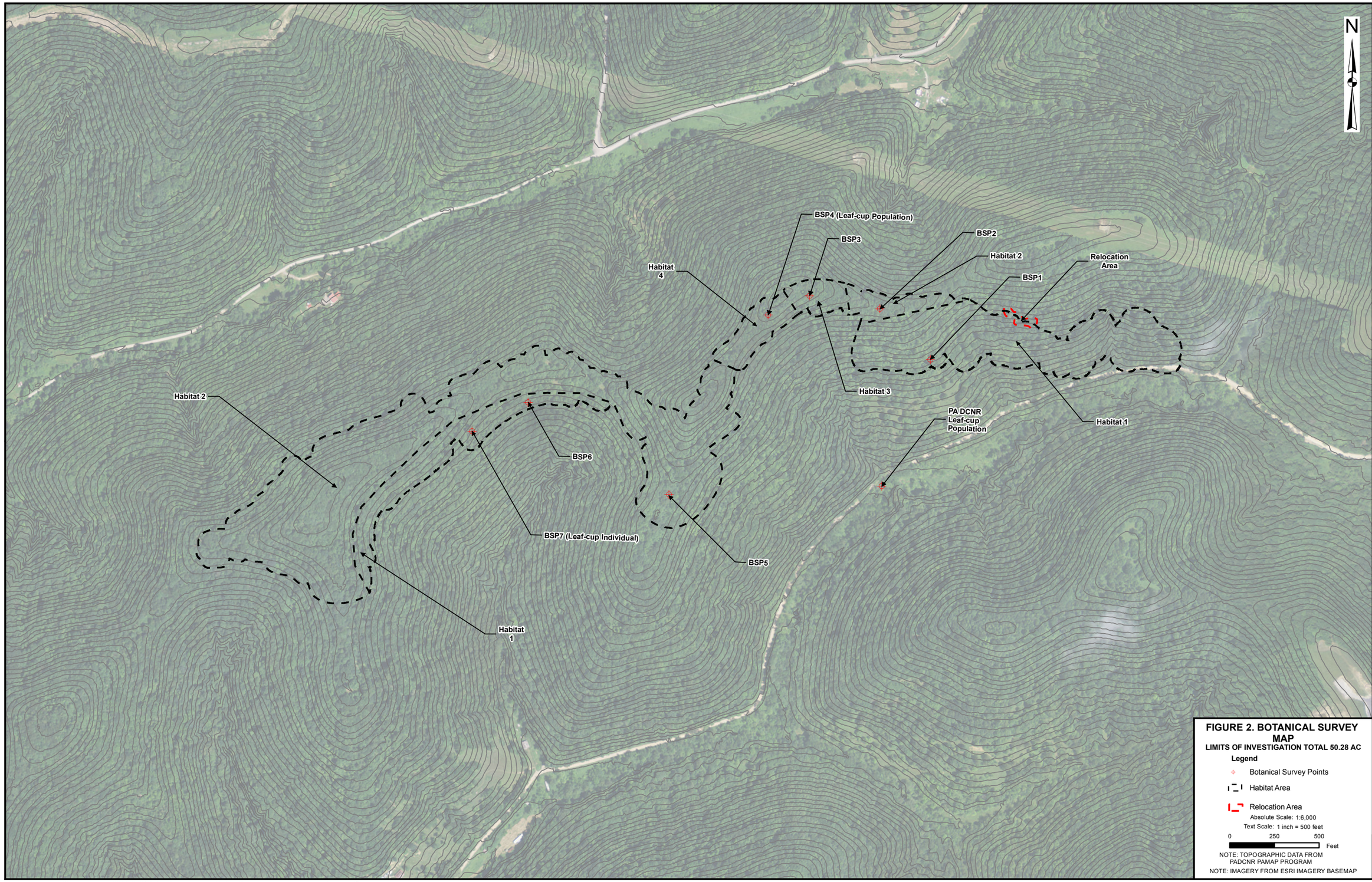

FIGURE 2. BOTANICAL SURVEY MAP

LIMITS OF INVESTIGATION TOTAL 50.28 AC

Legend

- Botanical Survey Points
- Habitat Area
- Relocation Area

Absolute Scale: 1:6,000

Text Scale: 1 inch = 500 feet

0 250 500 Feet

NOTE: TOPOGRAPHIC DATA FROM PADCNR PAMAP PROGRAM

NOTE: IMAGERY FROM ESRI IMAGERY BASEMAP

Revision

No.	Date

BLA Drawn

MRT Checked

VJA Approved

6/19/2015 Date

1421024 Project No.

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P: 304.985.5555 F: 304.985.5557

Client: RICE DRILLING B, LLC

Project: PISTON HONDA WELL SITE
Aleppo Township, Greene County, Pennsylvania

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APPENDIX B

RESUMES OF ENVIRONMENTAL PROFESSIONALS

Vincent J. Attardi

Environmental Services Leader

Mr. Attardi has over 33 years of experience conducting environmental and ecological investigations throughout the eastern United States. During the course of his career, he has held positions in the government, academic, and private sectors and has founded three ecological consulting firms. He is an aquatic ecologist by training and a leading expert in project permitting under Sections 404 and 401 of the Clean Water Act (CWA). He is proficient in wetland delineation, wetland/stream mitigation, wetland/stream/lake restoration, created wetland design, endangered species habitat assessments, environmental impact statements, natural resource management plans, and other natural resource investigations.

Field of Competence

- Managing environmental service operations and processes.
- Management of oil & gas environmental planning, permitting, and regulatory reporting
- Clean Water Act Permitting under Sections 404 and 401
- Wetland Mitigation design
- Endangered and threatened species assessments
- NEPA documentation and development

Education

- B.S., Marine Science/Biology, University of Tampa, 1981
- M.S., Biology, Rutgers University, 1994

Registration/Certifications

Member Society of Wetland Scientists
Member Society of American Military Engineers

Employment History

- 2014 – Present: Environmental Services Leader, Dieffenbauch & Hritz, LLC
- 2013 – 2014: Principal, Copperhead Environmental Consulting, Inc.
- 2011 – 2012: Senior Associate/ Environ. Lead, Stantec Consulting Services, Inc.
- 2005 – 2011: Senior Scientist/ Project Manager, Stantec Consulting Services, Inc.
- 2002 – 2005: President/ Senior Ecologist, Ecological Planning Group, LLC.
- 1999 – 2002: Program Manager, Law Engineering & Environmental Services, Inc.
- 1997 – 1999: Program Manager, Ogden Environmental & Energy Services, Inc.
- 1996 – 1997: Environmental Planner, Oldham Co. Kentucky Planning & Zoning
- 1991 – 1996: Vice President, Arsenault, Attardi & McCulley, Inc.
- 1988 – 1996: President, Ecological Planning Group, Inc.
- 1987 – 1988: Principal Environmental Specialist, Commissioner's Office, NJDEP
- 1984 – 1987: Senior Environmental Specialist, Environmental Analysis, NJDEP
- 1981 – 1984: Environmental Scientist, Southwest Florida Water Management District

Michael Tincher

Environmental Scientist

Mr. Tincher is currently an Environmental Scientist for Dieffenbauch & Hritz, LLC (D&H). In this capacity, Mr. Tincher conducts field work and report writing for D&H projects. Mr. Tincher's experience includes conducting wetland delineations according to the U.S. Army Corps of Engineers *Wetland Delineation Manual and* implementing the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* and stream assessments according to the US EPA Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers. Mr. Tincher also conducts preliminary environmental walkovers in the field in order to advise clients and engineers to avoid problem areas during the design and construction of projects.

Field of Competence

- Wetland & Stream Delineations
- Stream Assessment and Monitoring
- Benthic Macroinvertebrates and Fish Field Sampling Protocols & Identification
- CWA Section 404/401 Permitting
- Stream/Wetland Mitigation Design and Construction Monitoring
- Environmental Walkover/Preliminary Assessment
- Federal and State Agency Permit Coordination
- RBP Assessments

Education

- M.S., Wildlife and Fisheries Resources, West Virginia University (May 2013)
- B.S., Wildlife and Fisheries Resources, West Virginia University (May 2010)

Registration/Certifications

- 40-Hour Wetland Delineation Certification (April 2013, Swamp School)
- 10-Hour OSHA (March 2013)
- 10-Hour Safeland (August 2013)

Employment History

- August 2013 - Present
  Environmental Scientist,
  Dieffenbauch & Hritz, LLC

- 2013 - 2013
  Environmental Specialist,
  GAI Consultants, Inc.

Laura S. Calvert

Environmental Scientist

Ms. Calvert is an Environmental Scientist for Dieffenbauch & Hritz, LLC. In this capacity, Ms. Calvert conducts field work, report writing, and environmental permitting for D&H projects. Her experience includes conducting wetland delineations according to the U.S. Army Corps of Engineers *Wetland Delineation Manual* and implementing the 2012 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*.
In addition, Ms. Calvert has experience conducting permitting for the CWA Section 404/401, RHA Section 10 permitting, Forest Stand Delineations, Forest Conservation Plans, Phase I Environmental Site Assessments, Transaction Screens, Phase II Environmental Investigations, and Brownfield Site remediation.

Field of Competence

- Wetland & Stream Delineations
- CWA Section 404/401 permitting
- RHA Section 10 permitting
- Forest Stand Delineations
- Forest Conservation Plans
- Phase I & II Site Assessments
- Wildlife habitat relocation
- Vernal pool assessments
- Wetland & stream mitigation monitoring

Education

- B.S., Environmental and Natural Resource Economics, May 2011
  West Virginia University

Registration/Certifications

- Member Society of Wetland Scientists

Certifications

- 10 Hour OSHA – Construction & Health Certification (October 2014)
- 10 Hour SafelandUSA Certification (September 2014)
- ESRI Arc GIS Desktop Certification (June 2011)
- ESRI Spatial Analyst Certification (June 2011)
- Maryland Forest Conservation Qualified Professional, Maryland DNR (July 2014)

Employment History

- 2014 - Present
  Environmental Scientist,
  Dieffenbauch & Hritz, LLC

- 2011 - 2013
  Environmental Scientist,
  Geo-Technology Associates, Inc.

- 2010 - 2011
  Environmental Intern
  Coastal Resources, Inc.

Caleb Sullivan

Environmental Scientist / SEO

Mr. Sullivan is an Environmental Scientist / Sewage Enforcement Officer for Dieffenbauch & Hritz, LLC. In this capacity, Mr. Sullivan conducts field work, report writing, and environmental permitting for D&H projects. His experience includes conducting wetland delineations according to the U.S. Army Corps of Engineers *Wetland Delineation Manual* and implementing the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*, stream assessments and monitoring, residential well monitoring, water sampling, soil infiltration and subsurface evaluations, benthic sampling.

Field of Competence

- Wetland & stream delineations
- Soil infiltration and subsurface evaluations
- Residential water supply analyses
- Environmental and hazardous material sampling
- CWA Section 404/401 permitting
- Benthic field sampling protocols
- Rare, threatened, and endangered species studies and regulatory coordination
- Stream assessment and monitoring
- Phase I site assessments
- Indiana Bat Habitat identification surveys

Education

- B.S., Environmental and Natural Resource Economics,
  West Virginia University (December, 2011)

Certifications

- Sewage Enforcement Officer (Cert.# 03893) (2014)
- 40 Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) (2013)
- 40 Hour Wetland Delineation Certification (2014)
- Safeland (2012)
- 24 Hour MSHA (2012)
- MBSS Macro-invertebrate sampling (2014)

Employment History

- 2014 - Present
  Environmental Scientist,
  Dieffenbauch & Hritz, LLC

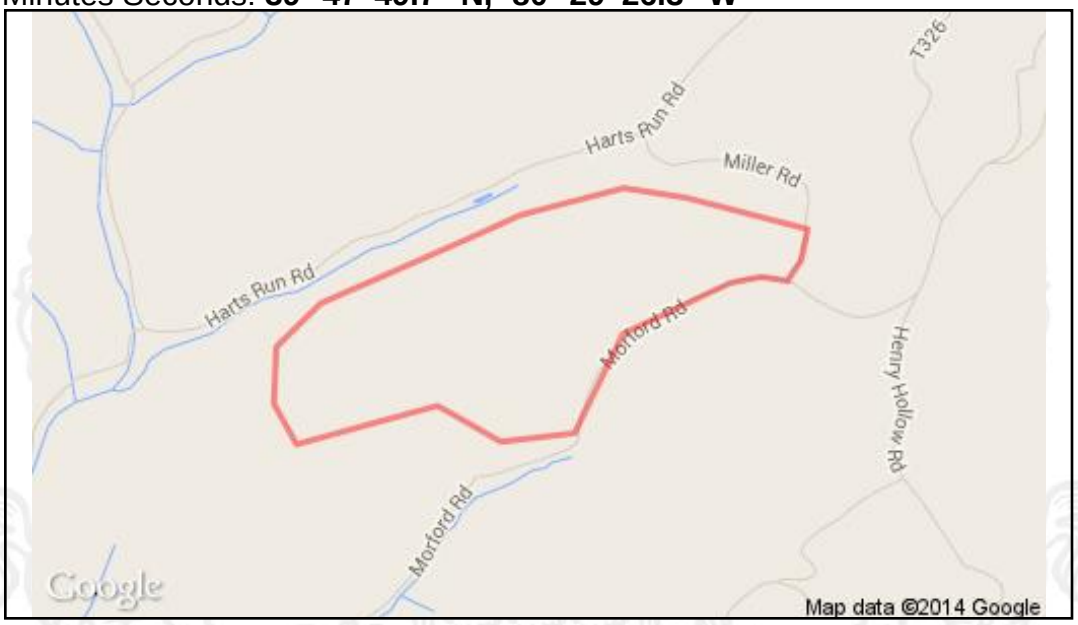
- 2012-2014
  Environmental Technician, Moody & Associates, LLC

APPENDIX C

PNDI PROJECT ENVIRONMENTAL REVIEW RECEIPT

1. PROJECT INFORMATION

Project Name: **Piston Honda Well Site**
Date of review: **10/30/2014 1:43:20 PM**
Project Category: **Energy Storage, Production, and Transfer,Energy Production (generation),Oil or Gas - new wells, expansion of well field**
Project Area: **244.2** acres
County: **Greene** Township/Municipality: **Springhill,Aleppo**
Quadrangle Name: **CAMERON (WV)** ~ ZIP Code: **15310,15352**
Decimal Degrees: **39.797140 N, -80.490640 W**
Degrees Minutes Seconds: **39° 47' 49.7" N, -80° 29' 26.3" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Passiflora lutea
Common Name: Passion-flower
Current Status: Endangered
Proposed Status: Threatened

Scientific Name: Smallanthus uvedalius
Common Name: Leaf-cup
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictinal agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____Project location information (name of USGS Quadrangle, Township/Mu?icipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA. 16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name:_____
Company/Business Name:_____
Address:_____
City, State, Zip:_____
Phone:(_____)_____Fax:(_____)_____
Email:_____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ _____
applicant/project proponent signature date

APPENDIX D

PADCNR SURVEY REQUEST

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

January 16, 2015 **PNDI Number: 20141030472392**

Michael J. Benson
Dieffenbauch & Hritz
1095 Chaplin Road, Suite 200
Morgantown, WV 26501
Email: mbenson@dandhengineers.com (hard copy will not follow)

Re: Rice Drilling B, LLC – Piston Honda Well Site
Springhill and Aleppo Township, Greene County, PA

Dear Mr. Benson,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 20141030472392 for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

Potential Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the project vicinity. Based on a detailed PNDI review, DCNR determined potential impacts to the following threatened or endangered species or species of special concern.

Scientific Name	Common Name	PA Current Status	PA Proposed Status
Passiflora lutea	Yellow Passion-flower	Endangered	Threatened
Smallanthus uvedalius	Leaf-cup	Rare	Rare

Survey Request
DCNR requests a survey for the following species:

- ***Passiflora lutea* (Yellow Passion-flower):** locally documented on an east-facing hilltop; prefers moist stream bank thickets and wooded slopes; flowers in July
- ***Smallanthus uvedalius* (Leaf-cup):** locally documented in a roadside opening in mixed deciduous forest (along Morford Road); prefers ravines, thickets, and river or stream banks; flowers July – September

✓ A survey for the above species should be conducted by a qualified botanist *at the appropriate time of year and then submitted to our office for review*. **Your botanist should carefully review the new DCNR Botanical Survey Protocols available at http://www.gis.dcnr.state.pa.us/hgis-er/Login.aspx. These protocols are recommended to ensure that the all necessary information is collected and that survey reports are prepared properly. It is the expectation of DCNR that these protocols will be followed when conducting surveys for species under our jurisdiction.**

✓ Your botanist should *fill out the field survey form while performing their survey:* http://www.gis.dcnr.state.pa.us/hgis-er/hgis/2012%20DCNR%20Field%20Survey%20Form.pdf. Contact our office prior to the survey for detailed information about the species, or for a list of qualified surveyors.

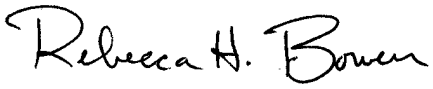
✓ Any target and non-target state-listed species found during the site visit should be reported to our office. Mitigation measures and monitoring may be requested if species or communities of special concern are found on or adjacent to site.

- ✓ If the land type(s) does not exist on site, a survey may not be necessary; please submit a habitat assessment report which describes the current land cover, habitat types, and species found on site.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Jason Ryndock, Ecological Information Specialist, by phone (717-705-2822) or via email (c-jryndock@pa.gov).

Sincerely,



Rebecca H. Bowen, Section Chief
Bureau of Forestry, Ecological Services Section
Pennsylvania Natural Heritage Program

APPENDIX E

BOTANICAL FIELD SURVEY FORMS FOR ENVIRONMENTAL REVIEW

Botanical Field Survey Form for Environmental Review

If botanist finds species of special concern on site, immediately contact our office at 717-787-3444 or dfisler@state.pa.us as we will likely want to revisit the population while it is still an appropriate time. Failure to contact our office immediately may result in a delay until next year's growing season.

Fill out form multiple times if searched different habitats for species of special concern (SOSC).

PNDI # 20141030472392	BSP1
County Greene County	Quad New Freeport
Survey Date/s 6/2/2015	Surveyor Michael Tincher and Caleb Sullivan
Amount of time spent surveying area 90 Minutes	
Name of site owner Rice Drilling B, LLC	
Directions to site See GPS Coordinates Below	
GPS (decimal degrees preferred) approximate center point of site 39.79537981 , -80.49050717	
Scientific name/s of target species Yellow passion-flower (Passiflora lutea) Leaf-cup (Smallanthus uvedalius)	
Site habitat description The plot is located along a mixed deciduous forest hillslope with an open understory.	
Substrate/soil type 0-4 inches 10YR 4/3 SiL ; 4-18 inches 10YR 5/4 SiCL	
System: ☑ Terrestrial ☐ Palustrine ☐ Estuarine	
Community Description (describe below)	

Strata/life form	*Height*	*% Cover*	*Most abundant/characteristic species*
Emergent tree	NA	NA	NA
Tree canopy	70'	85	Acer saccharum, Acer rubrum
Tree sub-canopy	30'	30	Sassafras albidum, Ulmus rubra, Acer saccharum
Tall shrub(>1 m)	7'	15	Lindera benzoin, Rosa multiflora
Short shrub(<1 m)	2'	5	Lindera benzoin, Quercus rubra
Herbaceous	1.5'	30	Ageratina altissima, Parthenocissus quinquefolia
Non-vascular	NA	NA	NA
Epiphyte/liana	NA	NA	NA

Other PA listed species that were not targeted for survey but may potentially exist on site-review PNDI list (**http://www.naturalheritage.state.pa.us/PlantsPage.aspx**) for species with similar preferred habitat
None

Estimate of immediate area that is potential habitat for target SOSC
~10 acres

Identification problems? If yes, explain.

None

References used (flora, experts, herbaria, etc.)

Newcomb, Lawrence. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 1977.
Brown, Lauren. Grasses: An Identification Guide. Houghton Mifflin Company, New York, NY. 1979.
Petrides, George A. A Field Guide to Eastern Trees. Houghton Mifflin Company, New York, NY. 1998.

Include topographic map with development site, potential target species habitat, and found populations of SOSC all clearly delineated. Additional detail is welcome.

Include photographs of habitat and, if found, SOSC. Submit digital photos electronically.

If SOSC was/were not found, check all reasons that apply:

☐	Ambiguous directions	☑	Disturbances	☐	Exotics	☐	Habitat destroyed
☐	Time of year	☐	Unsuitable habitat	☐	Weather	☐	Insufficiently/incompletely surveyed

☑ Elements may have never occurred here – 1st time area searched

☐ Other:

If previously known from this site, do you believe the species is/are now extirpated? ☐ yes ☐ no

Explain:

Botanist only needs to continue if SOSC was/were found on site. Fill out form that follows multiple times if more than one SOSC was located.

Directions (within site) to SOSC

GPS coordinates (decimal degrees preferred)

Small populations – GPS center point and list radius necessary to enclose whole population
Large populations – GPS multiple points around population perimeter

Habitat of SOSC (describe below)

Aspect	*Slope*	*Light*	*Topo Position*	*Moisture*	*Elevation*
☐ N	☐ Flat	☐ Open	☐ Crest	☐ Inundated (hydric)	_____ Min
☐ E	☐ 0-10%	☐ Partial	☐ Upper slope		_____ Max
☐ S	☐ 10-35%	☐ Filtered	☐ Mid-slope	☐ Saturated (wet-mesic)	
☐ W	☐ 35+%	☐ Shaded	☐ Lower slope		
☐ NE	☐ Vertical		☐ Bottom	☐ Moist (mesic)	
☐ NW					
☐ SE				☐ Dry (mesic)	
☐ SW					
☐ None				☐ Dry (xeric)	

Plant Biology (describe below)

Phenology	*Ramets*[1]	*Genets*[2]	*Population Area*	*Age Structure*	*Vigor*
☐ In leaf	☐ 1-10	☐	☐ 1 YD 2	☐ Annuals	☐ Very feeble
☐ In bud	☐ 11-50	☐	☐ 1-5 YD 2	☐ % Seedlings	☐ Feeble
☐ In flower	☐ 51-100	☐	☐ 5-10 YD 2	☐ % Immature	☐ Normal
☐ Immature fruit	☐ 101-1000	☐	☐ 10-100 YD 2	☐ % 1st year	☐ Vigorous
☐ Mature fruit	☐ 1001-10K	☐	☐ 100 YD 2 – 2 AC	☐ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐ 10K+	☐	☐ 2+ ACRES	☐ % Senescent	
	____ EST #	____	____ EST AREA		

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Biology comments
Population size, relative to other occurrences you have observed (state whether full extent of occurrences is known)
Age, successional stage of system
☐ Known or ☐ Inferred land use history
Chemical treatment (known or suspected) with herbicides, pesticides, other
Other anthropogenic or unnatural disturbance
Integrity/fragmentation of community
List of invasive species (alien or native)
Threats (on-site)
Threats (off-site)
List other members of this genus that occur on site. Hybridization?
Specimen taken? Specimen label data, repository and number
Conservation recommendations (include details on how to best avoid, minimize, and mitigate impacts)

Botanical Field Survey Form for Environmental Review

If botanist finds species of special concern on site, immediately contact our office at 717-787-3444 or dfisler@state.pa.us as we will likely want to revisit the population while it is still an appropriate time. Failure to contact our office immediately may result in a delay until next year's growing season.

Fill out form multiple times if searched different habitats for species of special concern (SOSC).

PNDI # 20141030472392	BSP2
County Greene County	Quad New Freeport
Survey Date/s 6/2/2015	Surveyor Michael Tincher and Caleb Sullivan
Amount of time spent surveying area 70 Minutes	
Name of site owner Rice Drilling B, LLC	
Directions to site See GPS Coordinates Below	
GPS (decimal degrees preferred) approximate center point of site 39.79613022 , -80.49153896	
Scientific name/s of target species Yellow passion-flower (Passiflora lutea) Leaf-cup (Smallanthus uvedalius)	
Site habitat description The plot is located along a mixed deciduous forest ridge with an open understory.	
Substrate/soil type 0-5 inches 10YR 4/3 SiL ; 5-18 inches 10YR 4/4 SiL	
System: ☑ Terrestrial ☐ Palustrine ☐ Estuarine	
Community Description (describe below)	

Strata/life form	*Height*	*% Cover*	*Most abundant/characteristic species*
Emergent tree	NA	NA	NA
Tree canopy	70'	85	Quercus rubra, Acer saccharum, Prunus serotina
Tree sub-canopy	25'	20	Acer saccharum, Carya cordiformis
Tall shrub(>1 m)	5'	10	Lindera benzoin, Rosa multiflora
Short shrub(<1 m)	2'	5	Lindera benzoin
Herbaceous	1.5'	10	Persicaria maculosa, Polystichum acrostichoides
Non-vascular	NA	NA	NA
Epiphyte/liana	NA	NA	NA

Other PA listed species that were not targeted for survey but may potentially exist on site-review PNDI list (http://www.naturalheritage.state.pa.us/PlantsPage.aspx) for species with similar preferred habitat
None

Estimate of immediate area that is potential habitat for target SOSC
~5 acres

Identification problems? If yes, explain.

None

References used (flora, experts, herbaria, etc.)

Newcomb, Lawrence. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 1977.
Brown, Lauren. Grasses: An Identification Guide. Houghton Mifflin Company, New York, NY. 1979.
Petrides, George A. A Field Guide to Eastern Trees. Houghton Mifflin Company, New York, NY. 1998.

Include topographic map with development site, potential target species habitat, and found populations of SOSC all clearly delineated. Additional detail is welcome.

Include photographs of habitat and, if found, SOSC. Submit digital photos electronically.

If SOSC was/were not found, check all reasons that apply:

☐	Ambiguous directions	☑	Disturbances	☐	Exotics	☐	Habitat destroyed
☐	Time of year	☑	Unsuitable habitat	☐	Weather	☐	Insufficiently/incompletely surveyed

☑ Elements may have never occurred here – 1st time area searched

☐ Other:

If previously known from this site, do you believe the species is/are now extirpated? ☐ yes ☐ no
Explain:

Botanist only needs to continue if SOSC was/were found on site. Fill out form that follows multiple times if more than one SOSC was located.

Directions (within site) to SOSC

GPS coordinates (decimal degrees preferred)

Small populations – GPS center point and list radius necessary to enclose whole population
Large populations – GPS multiple points around population perimeter

Habitat of SOSC (describe below)

Aspect	*Slope*	*Light*	*Topo Position*	*Moisture*	*Elevation*
☐ N	☐ Flat	☐ Open	☐ Crest	☐ Inundated (hydric)	_____ Min
☐ E	☐ 0-10%	☐ Partial	☐ Upper slope		_____ Max
☐ S	☐ 10-35%	☐ Filtered	☐ Mid-slope	☐ Saturated (wet-mesic)	
☐ W	☐ 35+%	☐ Shaded	☐ Lower slope		
☐ NE	☐ Vertical		☐ Bottom	☐ Moist (mesic)	
☐ NW					
☐ SE				☐ Dry (mesic)	
☐ SW					
☐ None				☐ Dry (xeric)	

Plant Biology (describe below)

Phenology	*Ramets*[1]	*Genets*[2]	*Population Area*	*Age Structure*	*Vigor*
☐ In leaf	☐ 1-10	☐	☐ 1 YD 2	☐ Annuals	☐ Very feeble
☐ In bud	☐ 11-50	☐	☐ 1-5 YD 2	☐ % Seedlings	☐ Feeble
☐ In flower	☐ 51-100	☐	☐ 5-10 YD 2	☐ % Immature	☐ Normal
☐ Immature fruit	☐ 101-1000	☐	☐ 10-100 YD 2	☐ % 1st year	☐ Vigorous
☐ Mature fruit	☐ 1001-10K	☐	☐ 100 YD 2 – 2 AC	☐ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐ 10K+	☐	☐ 2+ ACRES	☐ % Senescent	
	____ EST #	____	____ EST AREA		

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Biology comments
Population size, relative to other occurrences you have observed (state whether full extent of occurrences is known)
Age, successional stage of system
☐ Known or ☐ Inferred land use history
Chemical treatment (known or suspected) with herbicides, pesticides, other
Other anthropogenic or unnatural disturbance
Integrity/fragmentation of community
List of invasive species (alien or native)
Threats (on-site)
Threats (off-site)
List other members of this genus that occur on site. Hybridization?
Specimen taken? Specimen label data, repository and number
Conservation recommendations (include details on how to best avoid, minimize, and mitigate impacts)

Botanical Field Survey Form for Environmental Review

If botanist finds species of special concern on site, immediately contact our office at 717-787-3444 or dfisler@state.pa.us as we will likely want to revisit the population while it is still an appropriate time. Failure to contact our office immediately may result in a delay until next year's growing season.

Fill out form multiple times if searched different habitats for species of special concern (SOSC).

PNDI # 20141030472392	BSP3
County Greene County	Quad New Freeport
Survey Date/s 6/2/2015	Surveyor Michael Tincher and Caleb Sullivan
Amount of time spent surveying area 60 Minutes	
Name of site owner Rice Drilling B, LLC	
Directions to site See GPS Coordinates Below	
GPS (decimal degrees preferred) approximate center point of site 39.79630236 , -80.49295028	
Scientific name/s of target species Yellow passion-flower (Passiflora lutea) Leaf-cup (Smallanthus uvedalius)	
Site habitat description The plot is located along a mixed deciduous forest ridge with a thick understory.	
Substrate/soil type 0-5 inches 10YR 4/3 SiL ; 5-18 inches 10YR 4/4 SiL	
System: ☑ Terrestrial ☐ Palustrine ☐ Estuarine	
Community Description (describe below)	

Strata/life form	*Height*	*% Cover*	*Most abundant/characteristic species*
Emergent tree	NA	NA	NA
Tree canopy	50'	40	Juglans nigra, Prunus serotina
Tree sub-canopy	30'	20	Prunus serotina, Ulmus rubra
Tall shrub(>1 m)	8'	70	Lindera benzoin
Short shrub(<1 m)	NA	NA	NA
Herbaceous	1.5'	15	Polystichum acrostichoides, Galium aparine
Non-vascular	NA	NA	NA
Epiphyte/liana	NA	NA	NA

Other PA listed species that were not targeted for survey but may potentially exist on site-review PNDI list (http://www.naturalheritage.state.pa.us/PlantsPage.aspx) for species with similar preferred habitat None
Estimate of immediate area that is potential habitat for target SOSC ~2 acres

Identification problems? If yes, explain.

None

References used (flora, experts, herbaria, etc.)

Newcomb, Lawrence. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 1977.
Brown, Lauren. Grasses: An Identification Guide. Houghton Mifflin Company, New York, NY. 1979.
Petrides, George A. A Field Guide to Eastern Trees. Houghton Mifflin Company, New York, NY. 1998.

Include topographic map with development site, potential target species habitat, and found populations of SOSC all clearly delineated. Additional detail is welcome.

Include photographs of habitat and, if found, SOSC. Submit digital photos electronically.

If SOSC was/were not found, check all reasons that apply:

☐	Ambiguous directions	☑	Disturbances	☐	Exotics	☐	Habitat destroyed
☐	Time of year	☑	Unsuitable habitat	☐	Weather	☐	Insufficiently/incompletely surveyed

☑ Elements may have never occurred here – 1st time area searched

☐ Other:

If previously known from this site, do you believe the species is/are now extirpated? ☐ yes ☐ no
Explain:

Botanist only needs to continue if SOSC was/were found on site. Fill out form that follows multiple times if more than one SOSC was located.

Directions (within site) to SOSC

GPS coordinates (decimal degrees preferred)

Small populations – GPS center point and list radius necessary to enclose whole population
Large populations – GPS multiple points around population perimeter

Habitat of SOSC (describe below)

Aspect	*Slope*	*Light*	*Topo Position*	*Moisture*	*Elevation*
☐ N	☐ Flat	☐ Open	☐ Crest	☐ Inundated (hydric)	_____ Min
☐ E	☐ 0-10%	☐ Partial	☐ Upper slope		_____ Max
☐ S	☐ 10-35%	☐ Filtered	☐ Mid-slope	☐ Saturated (wet-mesic)	
☐ W	☐ 35+%	☐ Shaded	☐ Lower slope		
☐ NE	☐ Vertical		☐ Bottom	☐ Moist (mesic)	
☐ NW					
☐ SE				☐ Dry (mesic)	
☐ SW					
☐ None				☐ Dry (xeric)	

Plant Biology (describe below)

Phenology	*Ramets*[1]	*Genets*[2]	*Population Area*	*Age Structure*	*Vigor*
☐ In leaf	☐ 1-10	☐	☐ 1 YD 2	☐ Annuals	☐ Very feeble
☐ In bud	☐ 11-50	☐	☐ 1-5 YD 2	☐ % Seedlings	☐ Feeble
☐ In flower	☐ 51-100	☐	☐ 5-10 YD 2	☐ % Immature	☐ Normal
☐ Immature fruit	☐ 101-1000	☐	☐ 10-100 YD 2	☐ % 1st year	☐ Vigorous
☐ Mature fruit	☐ 1001-10K	☐	☐ 100 YD 2 – 2 AC	☐ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐ 10K+	☐	☐ 2+ ACRES	☐ % Senescent	
	____ EST #	____	____ EST AREA		

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Biology comments
Population size, relative to other occurrences you have observed (state whether full extent of occurrences is known)
Age, successional stage of system
☐ Known or ☐ Inferred land use history
Chemical treatment (known or suspected) with herbicides, pesticides, other
Other anthropogenic or unnatural disturbance
Integrity/fragmentation of community
List of invasive species (alien or native)
Threats (on-site)
Threats (off-site)
List other members of this genus that occur on site. Hybridization?
Specimen taken? Specimen label data, repository and number
Conservation recommendations (include details on how to best avoid, minimize, and mitigate impacts)

Botanical Field Survey Form for Environmental Review

If botanist finds species of special concern on site, immediately contact our office at 717-787-3444 or dfisler@state.pa.us as we will likely want to revisit the population while it is still an appropriate time. Failure to contact our office immediately may result in a delay until next year's growing season.

Fill out form multiple times if searched different habitats for species of special concern (SOSC).

PNDI # 20141030472392 BSP4	
County Greene County	Quad New Freeport
Survey Date/s 6/2/2015	Surveyor Michael Tincher and Caleb Sullivan
Amount of time spent surveying area 90 Minutes	
Name of site owner Rice Drilling B, LLC	
Directions to site See GPS Coordinates Below	
GPS (decimal degrees preferred) approximate center point of site 39.79598499 , -80.49376019	
Scientific name/s of target species Yellow passion-flower (Passiflora lutea) Leaf-cup (Smallanthus uvedalius)	
Site habitat description The plot is located along a ridge with an partial canopy and open understory. An active ATV trail also transects the habitat.	
Substrate/soil type 0-2 inches 10YR 3/3 SiL ; 2-14 inches 10YR 4/3 SiCL	
System: ☑ Terrestrial ☐ Palustrine ☐ Estuarine	

Community Description (describe below)

Strata/life form	*Height*	*% Cover*	*Most abundant/characteristic species*
Emergent tree	NA	NA	NA
Tree canopy	50'	35	Juglans nigra, Carya cordiformis
Tree sub-canopy	NA	NA	NA
Tall shrub(>1 m)	4'	15	Rosa multiflora
Short shrub(<1 m)	NA	NA	NA
Herbaceous	1.5'	70	Microstegium vimineum, Polygonum pensylvanicum
Non-vascular	NA	NA	NA
Epiphyte/liana	NA	NA	NA

Other PA listed species that were not targeted for survey but may potentially exist on site-review PNDI list (**http://www.naturalheritage.state.pa.us/PlantsPage.aspx**) for species with similar preferred habitat

None

Estimate of immediate area that is potential habitat for target SOSC

~2 acres

Identification problems? If yes, explain.

None

References used (flora, experts, herbaria, etc.)

Newcomb, Lawrence. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 1977.
Brown, Lauren. Grasses: An Identification Guide. Houghton Mifflin Company, New York, NY. 1979.
Petrides, George A. A Field Guide to Eastern Trees. Houghton Mifflin Company, New York, NY. 1998.

Include topographic map with development site, potential target species habitat, and found populations of SOSC all clearly delineated. Additional detail is welcome.

Include photographs of habitat and, if found, SOSC. Submit digital photos electronically.

If SOSC was/were not found, check all reasons that apply:

☐	Ambiguous directions	☐	Disturbances	☐	Exotics	☐	Habitat destroyed
☐	Time of year	☐	Unsuitable habitat	☐	Weather	☐	Insufficiently/incompletely surveyed

☐ Elements may have never occurred here – 1st time area searched

☐ Other:

If previously known from this site, do you believe the species is/are now extirpated? ☐ yes ☐ no

Explain:

Botanist only needs to continue if SOSC was/were found on site. Fill out form that follows multiple times if more than one SOSC was located.

Directions (within site) to SOSC

GPS coordinates (decimal degrees preferred)

39.79598499 , -80.49376019 <1 square yard radius

Small populations – GPS center point and list radius necessary to enclose whole population
Large populations – GPS multiple points around population perimeter

Habitat of SOSC (describe below)

Aspect	*Slope*	*Light*	*Topo Position*	*Moisture*	*Elevation*
☐ N	☐ Flat	☐ Open	✓ Crest	☐ Inundated (hydric)	_____ Min
☐ E	✓ 0-10%	✓ Partial	☐ Upper slope		_____ Max
☐ S	☐ 10-35%	☐ Filtered	☐ Mid-slope	☐ Saturated (wet-mesic)	
☐ W	☐ 35+%	☐ Shaded	☐ Lower slope		
☐ NE	☐ Vertical		☐ Bottom	✓ Moist (mesic)	
☐ NW					
☐ SE				☐ Dry (mesic)	
✓ SW					
☐ None				☐ Dry (xeric)	

Plant Biology (describe below)

Phenology	*Ramets*[1]		*Genets*[2]	*Population Area*	*Age Structure*	*Vigor*
✓ In leaf	☐	1-10	✓	✓ 1 YD 2	✓ Annuals	☐ Very feeble
☐ In bud	☐	11-50	☐	☐ 1-5 YD 2	☐ % Seedlings	✓ Feeble
☐ In flower	☐	51-100	☐	☐ 5-10 YD 2	☐ % Immature	☐ Normal
☐ Immature fruit	☐	101-1000	☐	☐ 10-100 YD 2	☐ % 1st year	☐ Vigorous
☐ Mature fruit	☐	1001-10K	☐	☐ 100 YD 2 – 2 AC	☐ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐	10K+	☐	☐ 2+ ACRES	☐ % Senescent	
	___	EST #	4	___ EST AREA		

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Biology comments Tips of leafs are turning black. Possibly because of being outcompeted by neighboring plants.
Population size, relative to other occurrences you have observed (state whether full extent of occurrences is known) Very small population of only four individuals
Age, successional stage of system
[ ] Known or [✓] Inferred land use history The population is <1ft from an active ATV trail.
Chemical treatment (known or suspected) with herbicides, pesticides, other
Other anthropogenic or unnatural disturbance
Integrity/fragmentation of community Fragmented. No other populations were located within the immediate vicinity.
List of invasive species (alien or native) Microstegium vimineum is located throughout the majority of this habitat type.
Threats (on-site) Competition from Microstegium vimineum; ATV disturbance
Threats (off-site)
List other members of this genus that occur on site. Hybridization? None
Specimen taken? Specimen label data, repository and number No
Conservation recommendations (include details on how to best avoid, minimize, and mitigate impacts) Transplant to across the LOI beside another located invidiual or transplant to a known location along Morford Road.

BOTANICAL FIELD SURVEY FORM – PA PLANT SPECIES OF SPECIAL CONCERN

DCNR requests a Botanical Field Survey Form be submitted for each occurrence/population of a PA Plant Species of Special Concern (SOSC) found during a survey. Please attempt to complete as many fields as possible. Please direct any questions to DCNR Bureau of Forestry, Ecological Services Section at (717)-787-3444.

Species Name: Leaf-cup (Smallanthus uvedalius)	**PNDI # (if applicable):** 20141030472392 **EO ID # (if applicable):**	☒ **New Occurrence** ☐ **Update**
Surveyor(s): M. Tincher, C. Sullivan	**Survey Date(s):** 6-2-2015	**Time Spent:** 90 minutes
Site Name: Piston Honda Well Site (BSP4)	**GPS Coordinates of Occurrence (include datum):** 39.79598499, -80.49376019 (NAD83)	
Directions to Site:		
Site Owner:	**Landowner aware of Species of Special Concern?** ☐ YES ☐ NO	
Owner Contact Information:	**Landowner consent for data submission to PA Heritage Program?** ☐ YES ☐ NO	
	Landowner consent for voucher collection? ☐ YES ☐ NO	

General SOSC Habitat Description: Southwestern facing ridge with forested canopy allowing partial light. Active ATV trail adjacent to observed population			
Estimate of Area of Potential Habitat: 2 acres			
Soil conditions (Substrate and soil type, soil moisture, underlying geology, etc.): Mesic soils — 0-2 inches 10YR 3/3 Silt loam; 2-14 inches 10YR 4/3 Silty clay loam			
Relative age/Successional stage:	**Aspect:** SW	**Elevation (provide units):**	
Moisture: ☐ Inundated (hydric) ☐ Saturated (wet-mesic) ☒ Moist (mesic) ☐ Dry (mesic) ☐ Dry (xeric)	**Light:** ☐ Open ☒ Partial ☐ Filtered ☐ Shaded	**Topo Position:** ☒ Crest ☐ Upper Slope ☐ Mid-slope ☐ Lower Slope ☐ Bottom	**Slope:** ☐ Flat ☒ 0-10% ☐ 10-35% ☐ 35+% ☐ Vertical

SOSC Occurrence Information (describe below)

Phenology:	# Plants: Ramets[1]		Genets[2]	Population Area:	Age Structure:	Vigor:
☒ In leaf	☐	1-10	☒	☒ 1 yd²	X Annuals	☐ Very Feeble
☐ In bud	☐	11-50	☐	☐ 1-5 yd²	___ % Seedlings	☒ Feeble
☐ In flower	☐	51-100	☐	☐ 5-10 yd²	___ % Immature	☐ Normal
☐ Immature fruit	☐	101-1000	☐	☐ 10-100 yd²	___ % 1st Year	☐ Vigorous
☐ Mature fruit	☐	1001-10K	☐	☐ 100 yd² – 1 ac	___ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐	10K+	☐	☐ 1+ acres	___ % Senescent	
	____	EST #	4	____ Est Area		

ID Confidence: ☒ Positive ID ☐ Somewhat certain ☐ Uncertain

ID Problems (explain):

____Known or X Inferred **Land Use History:**
Adjacent area has been disturbed by ATV use.

Integrity/Fragmentation of Habitat:
Habitat fragmented. Most of surrounding habitat is mature forest.

Land Use/Disturbance Information:

Threats (on- or off-site):
Competition from Microstegium vimineum and ATV disturbances

Conservation or Management Recommendations:
Transplant to another location with suitable habitat

Additional SOSC Comments:

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Associated Species :: Most Abundant/Dominant by Strata (est. % cover):

Canopy:	Sub-Canopy/Shrub:	Herbaceous:
Juglans nigra (15%)	Rosa multiflora (15%)	Microstegium vimineum (35%)
Carya cordiformis (15%)		Polygonum persicaria var. icum (20%)
		Dicanthelium clandestinum (15%)

Other Species Present:

Canopy:	Sub-Canopy/Shrub:	Herbaceous:

Invasive Species Present at Site (est. % Cover):

Please also submit site maps indicating species location, any photographs taken (to aid in confirming ID) and if a voucher specimen is collected, the label data, number, and repository.

Botanical Field Survey Form for Environmental Review

If botanist finds species of special concern on site, immediately contact our office at 717-787-3444 or dfisler@state.pa.us as we will likely want to revisit the population while it is still an appropriate time. Failure to contact our office immediately may result in a delay until next year's growing season.

Fill out form multiple times if searched different habitats for species of special concern (SOSC).

PNDI # 20141030472392	BSP5
County Greene County	Quad New Freeport
Survey Date/s 6/8/2015	Surveyor Michael Tincher and Laura Calvert
Amount of time spent surveying area 90 Minutes	
Name of site owner Rice Drilling B, LLC	
Directions to site See GPS Coordinates Below	
GPS (decimal degrees preferred) approximate center point of site 40.62641228 , -78.75776168	
Scientific name/s of target species Yellow passion-flower (Passiflora lutea) Leaf-cup (Smallanthus uvedalius)	
Site habitat description The plot is located along a mixed deciduous forest ridge with an open understory.	
Substrate/soil type 0-6 inches 10YR 3/3 SiL ; 6-18 inches 10YR 4/4 SiL	
System: ☑ Terrestrial ☐ Palustrine ☐ Estuarine	
Community Description (describe below)	

Strata/life form	*Height*	*% Cover*	*Most abundant/characteristic species*
Emergent tree	NA	NA	NA
Tree canopy	80'	95	Acer saccharum
Tree sub-canopy	NA	NA	NA
Tall shrub(>1 m)	NA	NA	NA
Short shrub(<1 m)	NA	NA	NA
Herbaceous	1.5'	20	Vitis aestivalis, Ageratina altissima, Persicaria maculosa
Non-vascular	NA	NA	NA
Epiphyte/liana	NA	NA	NA

Other PA listed species that were not targeted for survey but may potentially exist on site-review PNDI list (http://www.naturalheritage.state.pa.us/PlantsPage.aspx) for species with similar preferred habitat
None

Estimate of immediate area that is potential habitat for target SOSC
~25 acres

Identification problems? If yes, explain.

None

References used (flora, experts, herbaria, etc.)

Newcomb, Lawrence. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 1977.
Brown, Lauren. Grasses: An Identification Guide. Houghton Mifflin Company, New York, NY. 1979.
Petrides, George A. A Field Guide to Eastern Trees. Houghton Mifflin Company, New York, NY. 1998.

Include topographic map with development site, potential target species habitat, and found populations of SOSC all clearly delineated. Additional detail is welcome.

Include photographs of habitat and, if found, SOSC. Submit digital photos electronically.

If SOSC was/were not found, check all reasons that apply:

☐	Ambiguous directions	☐	Disturbances	☐	Exotics	☐	Habitat destroyed
☐	Time of year	☑	Unsuitable habitat	☐	Weather	☐	Insufficiently/incompletely surveyed

☑ Elements may have never occurred here – 1st time area searched

☐ Other:

If previously known from this site, do you believe the species is/are now extirpated? ☐ yes ☐ no

Explain:

Botanist only needs to continue if SOSC was/were found on site. Fill out form that follows multiple times if more than one SOSC was located.

Directions (within site) to SOSC

GPS coordinates (decimal degrees preferred)

Small populations – GPS center point and list radius necessary to enclose whole population
Large populations – GPS multiple points around population perimeter

Habitat of SOSC (describe below)

Aspect	*Slope*	*Light*	*Topo Position*	*Moisture*	*Elevation*
☐ N	☐ Flat	☐ Open	☐ Crest	☐ Inundated (hydric)	_____ Min
☐ E	☐ 0-10%	☐ Partial	☐ Upper slope		_____ Max
☐ S	☐ 10-35%	☐ Filtered	☐ Mid-slope	☐ Saturated (wet-mesic)	
☐ W	☐ 35+%	☐ Shaded	☐ Lower slope		
☐ NE	☐ Vertical		☐ Bottom	☐ Moist (mesic)	
☐ NW					
☐ SE				☐ Dry (mesic)	
☐ SW					
☐ None				☐ Dry (xeric)	

Plant Biology (describe below)

Phenology	*Ramets*[1]	*Genets*[2]	*Population Area*	*Age Structure*	*Vigor*
☐ In leaf	☐ 1-10	☐	☐ 1 YD 2	☐ Annuals	☐ Very feeble
☐ In bud	☐ 11-50	☐	☐ 1-5 YD 2	☐ % Seedlings	☐ Feeble
☐ In flower	☐ 51-100	☐	☐ 5-10 YD 2	☐ % Immature	☐ Normal
☐ Immature fruit	☐ 101-1000	☐	☐ 10-100 YD 2	☐ % 1st year	☐ Vigorous
☐ Mature fruit	☐ 1001-10K	☐	☐ 100 YD 2 – 2 AC	☐ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐ 10K+	☐	☐ 2+ ACRES	☐ % Senescent	
	___ EST #	___	___ EST AREA		

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Biology comments
Population size, relative to other occurrences you have observed (state whether full extent of occurrences is known)
Age, successional stage of system
☐ Known or ☐ Inferred land use history
Chemical treatment (known or suspected) with herbicides, pesticides, other
Other anthropogenic or unnatural disturbance
Integrity/fragmentation of community
List of invasive species (alien or native)
Threats (on-site)
Threats (off-site)
List other members of this genus that occur on site. Hybridization?
Specimen taken? Specimen label data, repository and number
Conservation recommendations (include details on how to best avoid, minimize, and mitigate impacts)

Botanical Field Survey Form for Environmental Review

If botanist finds species of special concern on site, immediately contact our office at 717-787-3444 or dfisler@state.pa.us as we will likely want to revisit the population while it is still an appropriate time. Failure to contact our office immediately may result in a delay until next year's growing season.

Fill out form multiple times if searched different habitats for species of special concern (SOSC).

PNDI # 20141030472392 BSP6	
County Greene County	Quad New Freeport
Survey Date/s 6/11/2015	Surveyor Michael Tincher and Laura Calvert
Amount of time spent surveying area 90 Minutes	
Name of site owner Rice Drilling B, LLC	
Directions to site See GPS Coordinates Below	
GPS (decimal degrees preferred) approximate center point of site 39.79468936 , -80.49833275	
Scientific name/s of target species Yellow passion-flower (Passiflora lutea) Leaf-cup (Smallanthus uvedalius)	
Site habitat description The plot is located along a mixed deciduous forest hillslope with an open understory.	
Substrate/soil type 0-9 inches 10YR 4/3 SiL ; 9-18 inches 10YR 5/6 SiL	
System: ☑ Terrestrial ☐ Palustrine ☐ Estuarine	
Community Description (describe below)	

Strata/life form	*Height*	*% Cover*	*Most abundant/characteristic species*
Emergent tree	NA	NA	NA
Tree canopy	70'	75	Acer rubrum, Acer saccharum
Tree sub-canopy	30'	35	Acer rubrum, Acer saccharum, Liriodendron tulipifera
Tall shrub(>1 m)	NA	NA	NA
Short shrub(<1 m)	NA	NA	NA
Herbaceous	2'	30	Ageratina altissima
Non-vascular	NA	NA	NA
Epiphyte/liana	NA	NA	NA

Other PA listed species that were not targeted for survey but may potentially exist on site-review PNDI list (http://www.naturalheritage.state.pa.us/PlantsPage.aspx) for species with similar preferred habitat
None

Estimate of immediate area that is potential habitat for target SOSC
~5 acres

Identification problems? If yes, explain.

None

References used (flora, experts, herbaria, etc.)

Newcomb, Lawrence. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 1977.
Brown, Lauren. Grasses: An Identification Guide. Houghton Mifflin Company, New York, NY. 1979.
Petrides, George A. A Field Guide to Eastern Trees. Houghton Mifflin Company, New York, NY. 1998.

Include topographic map with development site, potential target species habitat, and found populations of SOSC all clearly delineated. Additional detail is welcome.

Include photographs of habitat and, if found, SOSC. Submit digital photos electronically.

If SOSC was/were not found, check all reasons that apply:

☐	Ambiguous directions	☐	Disturbances	☐	Exotics	☐	Habitat destroyed
☐	Time of year	☐	Unsuitable habitat	☐	Weather	☐	Insufficiently/incompletely surveyed

☑ Elements may have never occurred here – 1st time area searched

☐ Other:

If previously known from this site, do you believe the species is/are now extirpated? ☐ yes ☐ no

Explain:

Botanist only needs to continue if SOSC was/were found on site. Fill out form that follows multiple times if more than one SOSC was located.

Directions (within site) to SOSC

GPS coordinates (decimal degrees preferred)

Small populations – GPS center point and list radius necessary to enclose whole population
Large populations – GPS multiple points around population perimeter

Habitat of SOSC (describe below)

Aspect	*Slope*	*Light*	*Topo Position*	*Moisture*	*Elevation*
☐ N	☐ Flat	☐ Open	☐ Crest	☐ Inundated (hydric)	_____ Min
☐ E	☐ 0-10%	☐ Partial	☐ Upper slope		_____ Max
☐ S	☐ 10-35%	☐ Filtered	☐ Mid-slope	☐ Saturated (wet-mesic)	
☐ W	☐ 35+%	☐ Shaded	☐ Lower slope		
☐ NE	☐ Vertical		☐ Bottom	☐ Moist (mesic)	
☐ NW					
☐ SE				☐ Dry (mesic)	
☐ SW					
☐ None				☐ Dry (xeric)	

Plant Biology (describe below)

Phenology	*Ramets*[1]	*Genets*[2]	*Population Area*	*Age Structure*	*Vigor*
☐ In leaf	☐ 1-10	☐	☐ 1 YD 2	☐ Annuals	☐ Very feeble
☐ In bud	☐ 11-50	☐	☐ 1-5 YD 2	☐ % Seedlings	☐ Feeble
☐ In flower	☐ 51-100	☐	☐ 5-10 YD 2	☐ % Immature	☐ Normal
☐ Immature fruit	☐ 101-1000	☐	☐ 10-100 YD 2	☐ % 1st year	☐ Vigorous
☐ Mature fruit	☐ 1001-10K	☐	☐ 100 YD 2 – 2 AC	☐ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐ 10K+	☐	☐ 2+ ACRES	☐ % Senescent	
	___ EST #	___	___ EST AREA		

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Biology comments
Population size, relative to other occurrences you have observed (state whether full extent of occurrences is known)
Age, successional stage of system
☐ Known or ☐ Inferred land use history
Chemical treatment (known or suspected) with herbicides, pesticides, other
Other anthropogenic or unnatural disturbance
Integrity/fragmentation of community
List of invasive species (alien or native)
Threats (on-site)
Threats (off-site)
List other members of this genus that occur on site. Hybridization?
Specimen taken? Specimen label data, repository and number
Conservation recommendations (include details on how to best avoid, minimize, and mitigate impacts)

Botanical Field Survey Form for Environmental Review

If botanist finds species of special concern on site, immediately contact our office at 717-787-3444 or dfisler@state.pa.us as we will likely want to revisit the population while it is still an appropriate time. Failure to contact our office immediately may result in a delay until next year's growing season.

Fill out form multiple times if searched different habitats for species of special concern (SOSC).

PNDI # 20141030472392	BSP7
County Greene County	Quad New Freeport
Survey Date/s 6/11/2015	Surveyor Michael Tincher and Laura Calvert

Amount of time spent surveying area
90 Minutes

Name of site owner Rice Drilling B, LLC

Directions to site
See GPS Coordinates Below

GPS (decimal degrees preferred) approximate center point of site
39.79405724 , -80.49958156

Scientific name/s of target species Yellow passion-flower (Passiflora lutea)
Leaf-cup (Smallanthus uvedalius)

Site habitat description
The plot is located along a mixed deciduous forest hillslope with an open understory.

Substrate/soil type
0-18 inches 10YR 4/3 SiL

System: ☑ Terrestrial ☐ Palustrine ☐ Estuarine

Community Description (describe below)

Strata/life form	*Height*	*% Cover*	*Most abundant/characteristic species*
Emergent tree	NA	NA	NA
Tree canopy	60'	65	Acer rubrum
Tree sub-canopy	30'	15	Acer rubrum
Tall shrub(>1 m)	NA	NA	NA
Short shrub(<1 m)	NA	NA	NA
Herbaceous	2'	45	Ageratina altissima,Cryptotaenia canadensis,Galium concinnum
Non-vascular	NA	NA	NA
Epiphyte/liana	NA	NA	NA

Other PA listed species that were not targeted for survey but may potentially exist on site-review PNDI list (**http://www.naturalheritage.state.pa.us/PlantsPage.aspx**) for species with similar preferred habitat
None

Estimate of immediate area that is potential habitat for target SOSC
~5 acres

Identification problems? If yes, explain.

None

References used (flora, experts, herbaria, etc.)

Newcomb, Lawrence. Newcomb's Wildflower Guide. Little, Brown and Company. Boston, MA. 1977.
Brown, Lauren. Grasses: An Identification Guide. Houghton Mifflin Company, New York, NY. 1979.
Petrides, George A. A Field Guide to Eastern Trees. Houghton Mifflin Company, New York, NY. 1998.

Include topographic map with development site, potential target species habitat, and found populations of SOSC all clearly delineated. Additional detail is welcome.

Include photographs of habitat and, if found, SOSC. Submit digital photos electronically.

If SOSC was/were not found, check all reasons that apply:

☐	Ambiguous directions	☐	Disturbances	☐	Exotics	☐	Habitat destroyed
☐	Time of year	☐	Unsuitable habitat	☐	Weather	☐	Insufficiently/incompletely surveyed

☐ Elements may have never occurred here – 1st time area searched

☐ Other:

If previously known from this site, do you believe the species is/are now extirpated? ☐ yes ☐ no
Explain:

Botanist only needs to continue if SOSC was/were found on site. Fill out form that follows multiple times if more than one SOSC was located.

Directions (within site) to SOSC

GPS coordinates (decimal degrees preferred)

39.79405724 , -80.49958156

Small populations – GPS center point and list radius necessary to enclose whole population
Large populations – GPS multiple points around population perimeter

Habitat of SOSC (describe below)

Aspect	*Slope*	*Light*	*Topo Position*	*Moisture*	*Elevation*
☐ N	☐ Flat	☐ Open	☐ Crest	☐ Inundated (hydric)	_____ Min
☐ E	☐ 0-10%	☐ Partial	✓ Upper slope		_____ Max
☐ S	✓ 10-35%	✓ Filtered	☐ Mid-slope	☐ Saturated (wet-mesic)	
☐ W	☐ 35+%	☐ Shaded	☐ Lower slope		
☐ NE	☐ Vertical		☐ Bottom	✓ Moist (mesic)	
☐ NW					
✓ SE				☐ Dry (mesic)	
☐ SW					
☐ None				☐ Dry (xeric)	

Plant Biology (describe below)

Phenology	*Ramets*[1]		*Genets*[2]	*Population Area*	*Age Structure*	*Vigor*
✓ In leaf	☐	1-10	✓	✓ 1 YD 2	✓ Annuals	☐ Very feeble
☐ In bud	☐	11-50	☐	☐ 1-5 YD 2	☐ % Seedlings	✓ Feeble
☐ In flower	☐	51-100	☐	☐ 5-10 YD 2	☐ % Immature	☐ Normal
☐ Immature fruit	☐	101-1000	☐	☐ 10-100 YD 2	☐ % 1st year	☐ Vigorous
☐ Mature fruit	☐	1001-10K	☐	☐ 100 YD 2 – 2 AC	☐ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐	10K+	☐	☐ 2+ ACRES	☐ % Senescent	
	___	EST #	1	___ EST AREA		

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Biology comments Only one individual. Viability as a population is not probable.
Population size, relative to other occurrences you have observed (state whether full extent of occurrences is known) Extremely small
Age, successional stage of system Mature forest
☐ Known or ☐ Inferred land use history
Chemical treatment (known or suspected) with herbicides, pesticides, other
Other anthropogenic or unnatural disturbance
Integrity/fragmentation of community
List of invasive species (alien or native)
Threats (on-site)
Threats (off-site)
List other members of this genus that occur on site. Hybridization? None
Specimen taken? Specimen label data, repository and number No
Conservation recommendations (include details on how to best avoid, minimize, and mitigate impacts) 1. Design around individual to avoid disturbances. Under this scenario, the other population of four individuals would be relocated with this individual. 2. Relocate individual to previously known location along Morford Road.

BOTANICAL FIELD SURVEY FORM – PA PLANT SPECIES OF SPECIAL CONCERN

DCNR requests a Botanical Field Survey Form be submitted for each occurrence/population of a PA Plant Species of Special Concern (SOSC) found during a survey. Please attempt to complete as many fields as possible. Please direct any questions to DCNR Bureau of Forestry, Ecological Services Section at (717)-787-3444.

Species Name: Leaf-cup (Smallanthus uvedalius)	**PNDI # (if applicable):** 201410304 7 2392 **EO ID # (if applicable):**	☒ **New Occurrence** ☐ **Update**
Surveyor(s): M. Tincher & L. Calvert	**Survey Date(s):** 6-11-2015	**Time Spent:** 60 minutes
Site Name: (BSP7) Piston Honda Well Site	**GPS Coordinates of Occurrence (include datum):** 39.79406, -80.49958 (NAD83)	
Directions to Site:		

Site Owner:	**Landowner aware of Species of Special Concern?** ☐ YES ☐ NO
Owner Contact Information:	**Landowner consent for data submission to PA Heritage Program?** ☐ YES ☐ NO
	Landowner consent for voucher collection? ☐ YES ☐ NO

General SOSC Habitat Description: Mixed deciduous forest along moderate gradient hillslope. Canopy dominated by Acer rubrum.)

Estimate of Area of Potential Habitat: ~5 acres

Soil conditions (Substrate and soil type, soil moisture, underlying geology, etc.): 0-18 inches 10YR 4/3 Silt loam

Relative age/Successional stage:	**Aspect:**	**Elevation (provide units):**
Mature	SE	

Moisture:	**Light:**	**Topo Position:**	**Slope:**
☐ Inundated (hydric)	☐ Open	☐ Crest	☐ Flat
☐ Saturated (wet-mesic)	☐ Partial	☒ Upper Slope	☐ 0-10%
☒ Moist (mesic)	☒ Filtered	☐ Mid-slope	☒ 10-35%
☐ Dry (mesic)	☐ Shaded	☐ Lower Slope	☐ 35+%
☐ Dry (xeric)		☐ Bottom	☐ Vertical

SOSC Occurrence Information (describe below)

Phenology:	# Plants: Ramets[1]		Genets[2]	Population Area:	Age Structure:	Vigor:
☒ In leaf	☐	1-10	☒	☒ 1 yd²	X Annuals	☐ Very Feeble
☐ In bud	☐	11-50	☐	☐ 1-5 yd²	___ % Seedlings	☒ Feeble
☐ In flower	☐	51-100	☐	☐ 5-10 yd²	___ % Immature	☐ Normal
☐ Immature fruit	☐	101-1000	☐	☐ 10-100 yd²	___ % 1st Year	☐ Vigorous
☐ Mature fruit	☐	1001-10K	☐	☐ 100 yd² – 1 ac	___ % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐	10K+	☐	☐ 1+ acres	___ % Senescent	
	____	EST #	1	____ Est Area		

ID Confidence:
☒ Positive ID ☐ Somewhat certain ☐ Uncertain

ID Problems (explain):

_____Known or _____Inferred Land Use History:

Integrity/Fragmentation of Habitat:

Land Use/Disturbance Information:

Threats (on- or off-site):

Conservation or Management Recommendations:
Design around the individual or transplant to a known location population.

Additional SOSC Comments:

[1]**Ramet: individual reproduced vegetatively (a clone)**
[2]**Genet: individual generated by sexual reproduction (a seedling)**

Associated Species :: Most Abundant/Dominant by Strata (est. % cover):

Canopy:	Sub-Canopy/Shrub:	Herbaceous:
Acer rubrum (65%)	Acer rubrum (15%)	Ageratina altissima (30%) Cryptotaenia canadensis (10%) Galium circinnum (5%)

Other Species Present:

Canopy:	Sub-Canopy/Shrub:	Herbaceous:

Invasive Species Present at Site (est. % Cover):

Please also submit site maps indicating species location, any photographs taken (to aid in confirming ID) and if a voucher specimen is collected, the label data, number, and repository.

APPENDIX F

SITE PHOTOGRAPHS

Photograph # 1
Photograph representative of Habitat 1 (BSP1) facing east

Photograph # 2
Photograph representative of Habitat 1 (BSP6) facing southeast

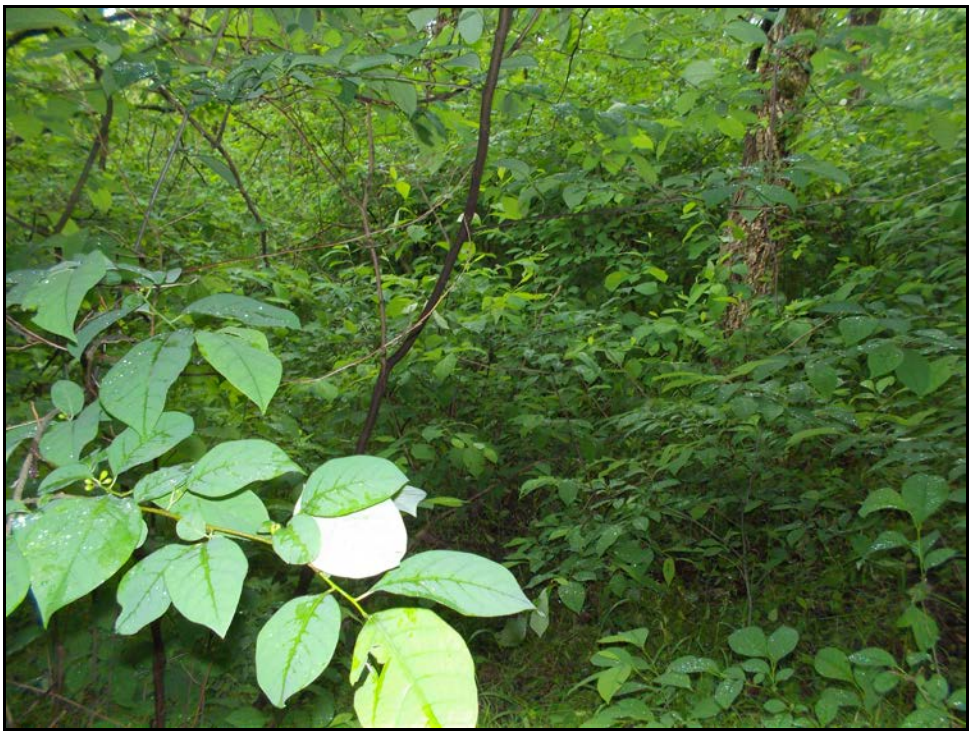
Photograph # 3
Photograph representative of Habitat 1 (BSP7) facing southwest

Photograph # 4
Photograph representative of an individual leaf-cup (*Smallanthus uvedalius*) population located in Habitat 1 (BSP7)

Photograph # 5
Close up view of the individual leaf-cup (*Smallanthus uvedalius*) within Habitat 1 (BSP7)

Photograph # 6
Photograph representative of Habitat 2 (BSP2) facing east

Photograph # 7
Photograph representative of Habitat 2 (BSP5) facing west



Photograph # 8
Photograph representative of Habitat 3 (BSP3) facing west

Photograph # 9
Photograph representative of Habitat 4 (BSP4) facing southwest

Photograph # 10
Photograph representative of leaf-cup (*Smallanthus uvedalius*) population located within Habitat 4 (BSP4) consisting of four individuals

Photograph # 11
Close view of leaf-cup (*Smallanthus uvedalius*) individuals within Habitat 4 (BSP4)

Photograph # 12
Close up of an individual leaf-cup (*Smallanthus uvedalius*) from Habitat 4 (BSP4)

APPENDIX G

SPECIES LIST

DIEFFENBAUCH & HRITZ

Trees

Scientific Name	Common Name
Acer rubrum	Red Maple
Acer saccharum	Sugar Maple
Carpinus caroliniana	Musclewood
Carya cordiformis	Bitternut Hickory
Carya tomentosa	Mockernut Hickory
Carya ovata	Shagbark Hickory
Cornus florida	Flowering Dogwood
Juglans nigra	Black Walnut
Liriodendron tulipifera	Yellow Poplar
Prunus serotina	Black Cherry
Quercus alba	White Oak
Quercus rubra	Red Oak
Quercus prinus	Chestnut Oak
Sassafras albidum	Sassafras
Ulmus rubra	Slippery Elm

Shrubs and Woody Vines

Scientific Name	Common Name
Berberis vulgaris	Common Barberry
Cercis canadensis	Eastern Redbud
Lindera benzoin	Spicebush
Lonicera morrowii	Morrow's Honeysuckle
Parthenocissus quinquefolia	Virginia Creeper
Rosa multiflora	Multiflora Rose
Rubus allegheniensis	Allegheny Blackberry
Smilax rotundifolia	Common Greenbrier
Toxicodendron radicans	Poison Ivy
Vitis aestivalis	Summer Grape

Herbaceous

Scientific Name	Common Name
Achillea millefolium	Common Yarrow
Ageratina altissima	White Snakeroot
Agrimonia parviflora	Harvestlice
Ambrosia artemisiifolia	Annual Ragweed
Amphicarpaea bracteata	American Hogpeanut
Apocynum cannabinum	Dogbane

Cirsium discolor	Field Thistle
Cryptotaenia canadensis	Canadian Honewort
Dichanthelium clandestinum	Deertongue
Dryopteris intermedia	Woodfern
Erigeron philadelphicus	Common Fleabane
Galium aparine	Catchweed
Galium mollugo	False Baby's Breath
Geum virginianum	Cream-colored Avens
Glechoma hederacea	Ground Ivy
Hackelia virginiana	Beggar's Lice
Lycopodium dendroideum	Groundpine
Maianthemum racemosum	False Solomon's Seal
Malva neglecta	Common Mallow
Mentha sylvestris	Wild Mint
Microstegium vimineum	Japanese Stiltgrass
Onoclea sensibilis	Sensitive Fern
Oxalis acetosella	Wood Sorrel
Persicaria maculosa	Lady's Thumb
Podophyllum peltatum	Mayapple
Polygonum pensylvanicum	Pennsylvania Smartweed
Polystichum acrostichoides	Christmas Fern
Potentilla simplex	Common Cinquefoil
Rumex obtusifolius	Broadleaf Dock
Smallanthus uvedalius	Hairy Leafcup
Trifolium repens	White Clover
Urtica dioica	Stinging Nettle
Xanthium strumarium	Cocklebur

DIEFFENBAUCH & HRITZ

DIEFFENBAUCH & HRITZ, LLC
1095 Chaplin Hill Road Suite 200
Morgantown, WV 26501
Office: 304-985-5555
Fax: 304-985-5557

July 21, 2015

Mr. Jason Ryndock
Ecological Information Specialist
Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry Natural Heritage Section
400 Market Street
Harrisburg, Pennsylvania 17105

RE: **Leaf-cup Relocation; Piston Honda Well Site**
Greene County, Pennsylvania
PNDI #: 20141030472392
Project #: 1421024

Dear Mr. Ryndock,

Dieffenbauch & Hritz, LLC (D&H) submitted a Botanical Survey Report for the Piston Honda Well Site project on behalf of Rice Drilling B, LLC on June 19, 2015. Two locations of leaf-cup (*Smallanthus uvedalius*) were found within the proposed limits of disturbance (LOD). In a response dated July 2, 2015, the Pennsylvania Department of Conservation and Natural Resources approved D&H's relocation recommendation to transplant the two populations to a southern aspect slope adjacent to the LOD (**Attachment A**).

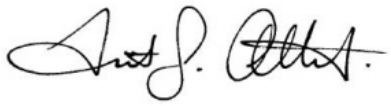
Environmental Scientists from D&H relocated the two leaf-cup populations, a total of five individual plants, on July 20, 2015. The selected location has a southern aspect and is approximately 50 feet upslope from a proposed access road LOD. The location currently has a small canopy gap that allows partial sunlight to penetrate through. A Botanical Survey map is included in **Attachment B**.

Areas to plant the leaf-cup were dug before the transplanting process commenced. The leaf-cup individuals appeared to be feeble before they were relocated. Portions of stems and leaves appeared to have been possibly consumed by an animal. The plants were removed from the original locations and carried to the relocation area. As much soil from the original locations were retained on the roots as possible. Excess soil from the original locations was also used to fill in around the transplanted individuals. The relocated individuals were watered and the area was staked and flagged. Photographs of the process are included in **Attachment C**.

The relocated plants will be monitored in approximately one year (July 2016) to document survivorship. A report detailing the results of that monitoring event will be submitted to your office at that time.

D&H would like to thank you for your timely and professional review and concurrence of this report and its findings. If you have any questions, or require further information, please do not hesitate to contact me or Michael Tincher.

Sincerely,
DIEFFENBAUCH & HRITZ, LLC



Vincent J. Attardi
Environmental Services Leader
vattardi@dandhengineers.com

Michael Tincher
Environmental Scientist
mtincher@dandhengineers.com

ATTACHMENT A

PADCNR REPORT RESPONSE

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

July 2, 2015 **PNDI Number: 20141030472392**

Vincent Attardi
Dieffenbauch & Hritz
1095 Chaplin Road, Suite 200
Morgantown, WV 26501
Email: vattardi@dandhengineers.com (hard copy will not follow)

Re: Piston Honda Well Site – Botanical Report
Springhill and Aleppo Townships, Greene County, PA

Dear Mr. Attardi,

Thank you for the submission of your field survey for Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 20141030472392 for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated per Survey (with Mitigation and Monitoring)

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. DCNR requested a survey for *Passiflora lutea* (yellow passionflower) and *Smallanthus uvedalius* (leaf-cup) on January 16, 2015. Botanical surveys were conducted by Dieffenbauch & Hrtiz, LLC (D&H) on June 2, 8, and 11, 2015.

Two populations of leaf-cup were documented within the project limit-of-disturbance. Neither population can be avoided. D&H has proposed to transplant both populations to suitable habitat at another location onsite, approximately 25 feet from the edge of the limit-of-disturbance. A single monitoring event is requested one (1) year following the leaf-cup relocation to document survivorship. Please submit a brief report in the future detailing the monitoring event. With the addition of these measures, DCNR has determined that no impact is likely.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Jason Ryndock, Ecological Information Specialist, by phone (717-705-2822) or via email (c-jryndock@pa.gov).

Sincerely

Greg Podniesinski

Greg Podniesinski, Section Chief
Natural Heritage Section

ATTACHMENT B

BOTANICAL SURVEY MAP

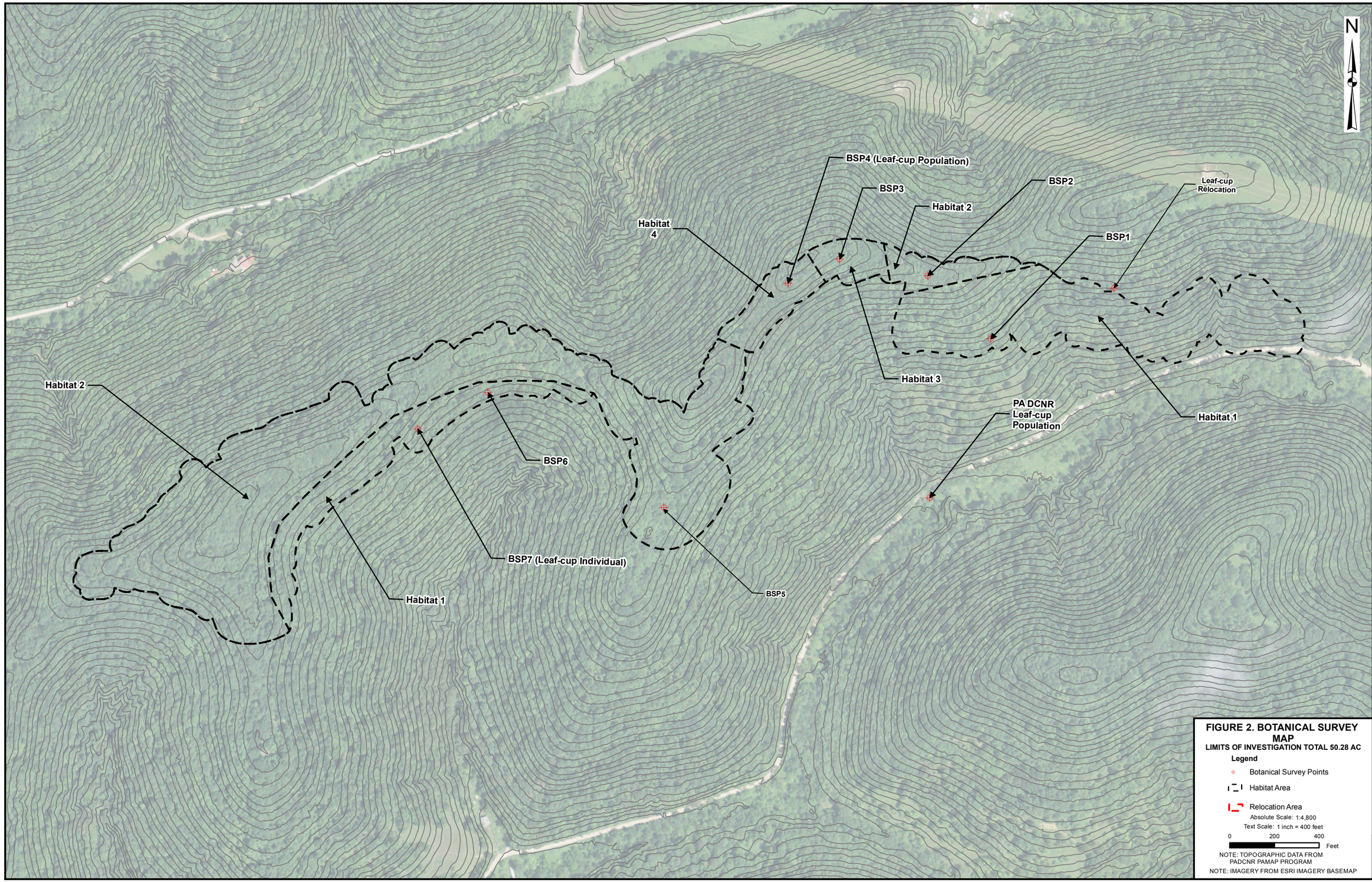


FIGURE 2. BOTANICAL SURVEY MAP

LIMITS OF INVESTIGATION TOTAL 50.28 AC

Legend

- Botanical Survey Points
- Habitat Area
- Relocation Area

Absolute Scale: 1:4,800

Text Scale: 1 inch = 400 feet

0 200 400 Feet

NOTE: TOPOGRAPHIC DATA FROM PADCNR PAMAP PROGRAM

NOTE: IMAGERY FROM ESRI IMAGERY BASEMAP

Revision | No. | Date

BLA Drawn

MRT Checked

VJA Approved

7/20/2015 Date

1421024 Project No.

DIEFFENBAUCH & HRITZ
1095 Greenbag Road, Suite 200
Morgantown, WV 26508
www.dandhengineers.com
P: 304.985.5555 F: 304.985.5557

Client: RICE DRILLING B, LLC

Project: PISTON HONDA WELL SITE
Aleppo Township, Greene County, Pennsylvania

Page 1 of 1

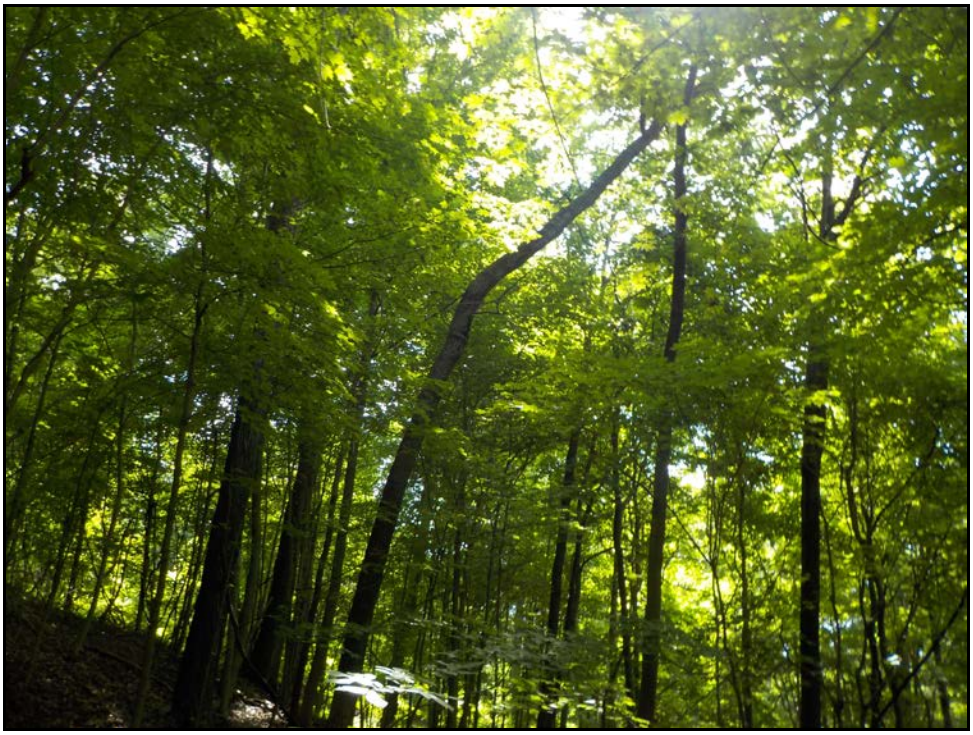
Document Path: K:\Rice Energy\2014\1421024 - Piston Honda (Beta 18)\Mapping\PistonHonda_BotanicalSurvey.mxd

ATTACHMENT C

PHOTOGRAPHS

Photograph # 1
Photograph representative of relocation area facing north

Photograph # 2
Photograph representative of relocation area facing east



Photograph # 3
Photograph representative small canopy gap at relocation area

Photograph # 4
Photograph representative of leaf-cup (*Smallanthus uvedalius*) population prior to relocation

Photograph # 5
Close up view of the three clustered leaf-cup (*Smallanthus uvedalius*) individuals prior to relocation

Photograph # 6
Close up view of the base of three clustered leaf-cup (*Smallanthus uvedalius*) individuals prior to relocation

Photograph # 7
Close up view of an individual leaf-cup (*Smallanthus uvedalius*) missing the top portion

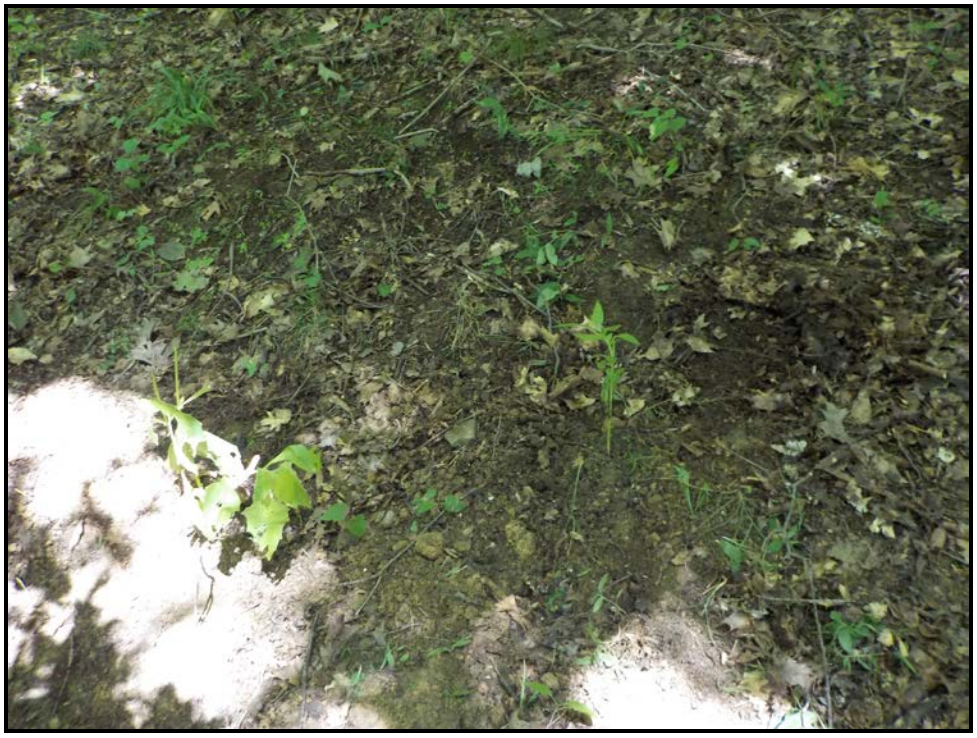
Photograph # 8
Photograph representative of a small individual leaf-cup (*Smallanthus uvedalius*)

Photograph # 9
Photograph representative of the isolated leaf-cup (*Smallanthus uvedalius*)

Photograph # 10
Photograph representative of the isolated leaf-cup (*Smallanthus uvedalius*)

Photograph # 11
Photograph representative of area after isolated individual removed for relocation

Photograph # 12
Photograph representative of area after individuals removed from area for relocation



Photograph # 13
Photograph representative of individuals after relocation

Photograph # 14
Photograph representative of individuals after relocation

Photograph # 15
Close up view of individual after relocation

Photograph # 16
Close up view of individual after relocation

Photograph # 17
Photograph representative of leaf-cup (*Smallanthus uvedalius*) population after relocation

DIEFFENBAUCH & HRITZ, LLC
1095 Chaplin Hill Road Suite 200
Morgantown, WV 26501
Office: 304-985-5555
Fax: 304-985-5557

June 23, 2016

Mr. Jason Ryndock
Ecological Information Specialist
Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry Natural Heritage Section
400 Market Street
Harrisburg, Pennsylvania 17105

RE: **Leaf-cup Relocation; Piston Honda Well Site**
Greene County, Pennsylvania
PNDI #: 20141030472392
Project #: 14021-024

Dear Mr. Ryndock,

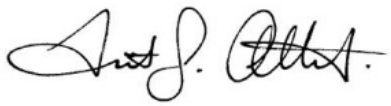
Dieffenbauch & Hritz, LLC (D&H) submitted a Botanical Survey Report for the Piston Honda Well Site project on behalf of Rice Drilling B, LLC on June 19, 2015. Two locations of leaf-cup (*Smallanthus uvedalius*) were found within the proposed limits of disturbance (LOD). In a response dated July 2, 2015, the Pennsylvania Department of Conservation and Natural Resources approved D&H's relocation recommendation to transplant the two populations to a southern aspect slope adjacent to the LOD (**Attachment A**).

Environmental Scientists from D&H relocated the two leaf-cup populations, a total of five individual plants, on July 20, 2015. The selected location has a southern aspect and is approximately 50 feet upslope from a proposed access road LOD. A Botanical Survey Map is included in **Attachment B** and the relocation notification letter is provided in **Attachment C**.

The relocated population was visited on June 22, 2016 to document survivorship. Six individuals were observed in the relocated population. All of the plants appear to exhibit vigor and are in better condition than they were prior to relocation. A Botanical Field Survey Form for the population is included in **Attachment D**. Currently, the Piston Honda Well Site is being constructed. More light is being provided to the population due to tree clearance for the access road associated with the well site. No other indirect impacts appear to be affecting the population. Photographs of the individuals are included in **Attachment E**.

D&H would like to thank you for your timely and professional review and concurrence of this report and its findings. If you have any questions, or require further information, please do not hesitate to contact me or Michael Tincher.

Sincerely,
DIEFFENBAUCH & HRITZ, LLC



Vincent J. Attardi
Environmental Services Leader
vattardi@dandhengineers.com

Michael Tincher
Environmental Scientist
mtincher@dandhengineers.com

Attachment A – PADCNR Report Response
Attachment B – Botanical Survey Map
Attachment C – Relocation Notification Letter
Attachment D – Botanical Field Survey Form
Attachment E – Photographs

ATTACHMENT A

PADCNR REPORT RESPONSE

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

July 2, 2015 **PNDI Number: 20141030472392**

Vincent Attardi
Dieffenbauch & Hritz
1095 Chaplin Road, Suite 200
Morgantown, WV 26501
Email: vattardi@dandhengineers.com (hard copy will not follow)

Re: Piston Honda Well Site – Botanical Report
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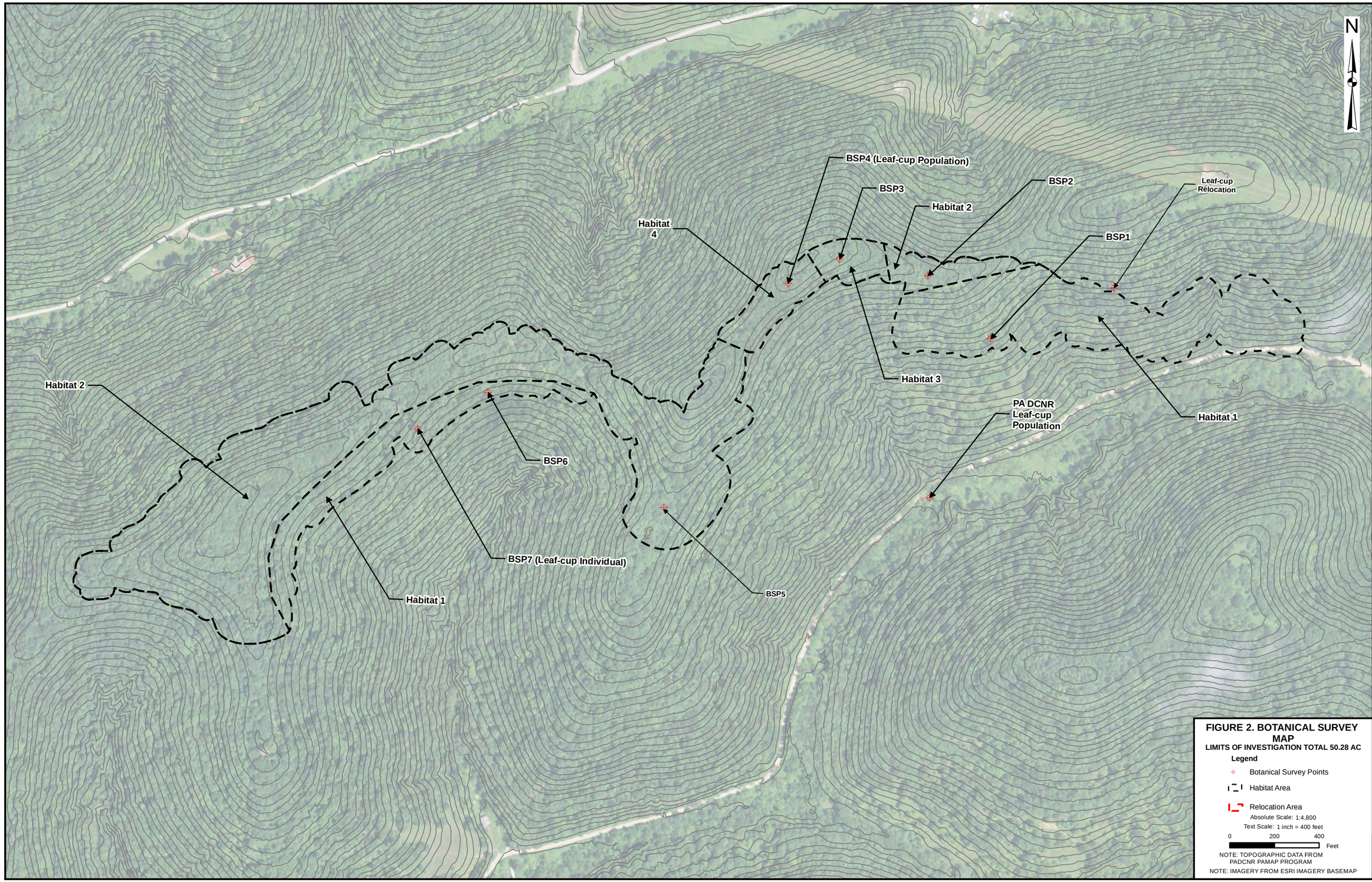
Sincerely

Greg Podniesinski

Greg Podniesinski, Section Chief
Natural Heritage Section

ATTACHMENT B

BOTANICAL SURVEY MAP



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NOTE: IMAGERY FROM ESRI IMAGERY BASEMAP

Revision

No.	Date

BLA Drawn

MRT Checked

VJA Approved

7/20/2015 Date

1421024 Project No.

DIEFFENBAUCH & HRITZ
1095 Chaplin Run Rd, Ste 200
Morgantown, WV 26501
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P: 304.985.5555 F: 304.985.5557

Client: RICE DRILLING B, LLC

Project: PISTON HONDA WELL SITE
Aleppo Township, Greene County, Pennsylvania

Document Path: K:\Rice Energy\2014\1421024 - Piston Honda (Beta 18)\Mapping\PistonHonda_BotanicalSurvey.mxd

ATTACHMENT C

RELOCATION NOTIFICATION LETTER

DIEFFENBAUCH & HRITZ, LLC
1095 Chaplin Hill Road Suite 200
Morgantown, WV 26501
Office: 304-985-5555
Fax: 304-985-5557

July 21, 2015

Mr. Jason Ryndock
Ecological Information Specialist
Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry Natural Heritage Section
400 Market Street
Harrisburg, Pennsylvania 17105

RE: **Leaf-cup Relocation; Piston Honda Well Site**
Greene County, Pennsylvania
PNDI #: 20141030472392
Project #: 1421024

Dear Mr. Ryndock,

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Areas to plant the leaf-cup were dug before the transplanting process commenced. The leaf-cup individuals appeared to be feeble before they were relocated. Portions of stems and leaves appeared to have been possibly consumed by an animal. The plants were removed from the original locations and carried to the relocation area. As much soil from the original locations were retained on the roots as possible. Excess soil from the original locations was also used to fill in around the transplanted individuals. The relocated individuals were watered and the area was staked and flagged. Photographs of the process are included in **Attachment C**.

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D&H would like to thank you for your timely and professional review and concurrence of this report and its findings. If you have any questions, or require further information, please do not hesitate to contact me or Michael Tincher.

Sincerely,
DIEFFENBAUCH & HRITZ, LLC

Vincent J. Attardi
Environmental Services Leader
vattardi@dandhengineers.com

Michael Tincher
Environmental Scientist
mtincher@dandhengineers.com

ATTACHMENT D

BOTANICAL FIELD SURVEY FORM

BOTANICAL FIELD SURVEY FORM – PA PLANT SPECIES OF SPECIAL CONCERN

DCNR requests a Botanical Field Survey Form be submitted for each occurrence/population of a PA Plant Species of Special Concern (SOSC) found during a survey. Please attempt to complete as many fields as possible. Please direct any questions to DCNR Bureau of Forestry, Ecological Services Section at (717)-787-3444.

Species Name: Smallanthus uvedalius	**PNDI # (if applicable):** 20141030472392 **EO ID # (if applicable):**	☐ **New Occurrence** ☑ **Update**
Surveyor(s): M. Tincher, M Benson, M Wagner	**Survey Date(s):** 6-22-2016	**Time Spent:** 30 minutes
Site Name: Piston Honda	**GPS Coordinates of Occurrence (include datum):** 39.796054, -80.488568 NAD 83 PA South	
Directions to Site:		

Site Owner: Rice Drilling B LLC	**Landowner aware of Species of Special Concern?** ☒ **YES** ☐ **NO**
Owner Contact Information:	**Landowner consent for data submission to PA Heritage Program?** ☐ **YES** ☐ **NO**
	Landowner consent for voucher collection? ☐ **YES** ☐ **NO**

General SOSC Habitat Description: Population relocated approximately 25-50 feet upslope of a proposed well site access road in July 2015. Site currently under construction. Area currently has partial sunlight from the south because of the construction. Plants are located under a tall canopy with open understory.

Estimate of Area of Potential Habitat: None parallel to access road.

Soil conditions (Substrate and soil type, soil moisture, underlying geology, etc.): Mesic soils.

Relative age/Successional stage:	**Aspect:** Southern	**Elevation (provide units):**

Moisture:	**Light:**	**Topo Position:**	**Slope:**
☐ **Inundated (hydric)**	☐ **Open**	☐ **Crest**	☐ **Flat**
☐ **Saturated (wet-mesic)**	☒ **Partial**	☐ **Upper Slope**	☐ **0-10%**
☒ **Moist (mesic)**	☐ **Filtered**	☒ **Mid-slope**	☒ **10-35%**
☐ **Dry (mesic)**	☐ **Shaded**	☐ **Lower Slope**	☐ **35+%**
☐ **Dry (xeric)**		☐ **Bottom**	☐ **Vertical**

SOSC Occurrence Information (describe below)

Phenology:	# Plants: Ramets[1]		Genets[2]	Population Area:	Age Structure:	Vigor:
☒ In leaf	☐	1-10	☒	☐ 1 yd²	___ Annuals	☐ Very Feeble
☐ In bud	☐	11-50	☐	☒ 1-5 yd²	___ % Seedlings	☐ Feeble
☐ In flower	☐	51-100	☐	☐ 5-10 yd²	___ % Immature	☒ Normal
☐ Immature fruit	☐	101-1000	☐	☐ 10-100 yd²	___ % 1st Year	☐ Vigorous
☐ Mature fruit	☐	1001-10K	☐	☐ 100 yd² – 1 ac	100 % Mature	☐ Exceptional vigor
☐ Seed dispersing	☐	10K+	☐	☐ 1+ acres	___ % Senescent	
	____	EST #	6	____ Est Area		

ID Confidence: ☒ Positive ID ☐ Somewhat certain ☐ Uncertain

ID Problems (explain): None

__X__ Known or ____ Inferred Land Use History: Adjacent land (within 50 feet) is being used as a well site and associated access road.

Integrity/Fragmentation of Habitat:

Land Use/Disturbance Information: Nearby well site construction

Threats (on- or off-site): Adjacent well site construction

Conservation or Management Recommendations: Keep specimens in their current location. The construction of the access road is beneficial for the plants because it allows more sunlight to penetrate canopy.

Additional SOSC Comments:

[1]Ramet: individual reproduced vegetatively (a clone)
[2]Genet: individual generated by sexual reproduction (a seedling)

Associated Species :: Most Abundant/Dominant by Strata (est. % cover):

Canopy:	Sub-Canopy/Shrub:	Herbaceous:

Other Species Present:

Canopy: (60%)	Sub-Canopy/Shrub: (10%)	Herbaceous: (15%)
Quercus rubra	A. Saccharum	Parthenocissus quinquefolia
Acer Saccharum	Q. rubra	Galium Circaezans
Acer rubrum		Ageratina altissima
80ft height	15ft height	Dichanthelium clandestinum

Invasive Species Present at Site (est. % Cover):

Please also submit site maps indicating species location, any photographs taken (to aid in confirming ID) and if a voucher specimen is collected, the label data, number, and repository.

ATTACHMENT E

PHOTOGRAPHS

Photograph # 1
Photograph representative of three leaf-cup (*Smallanthus uvedalius*) individuals clustered together

Photograph # 2
Photograph representative of three leaf-cup (*Smallanthus uvedalius*) individuals

Photograph # 3
Photograph representative of three leaf-cup (*Smallanthus uvedalius*) individuals clustered together

Photograph # 4
Close up view of an individual leaf-cup (*Smallanthus uvedalius*)

Photograph # 5
Close up view of an individual leaf-cup (*Smallanthus uvedalius*)

Photograph # 6
Close up view of an individual leaf-cup (*Smallanthus uvedalius*)

Photograph # 7
Close up view of an individual leaf-cup (*Smallanthus uvedalius*)