



**CONSERVATION COMMISSION
MEETING**

Thursday, March 16, 2017 6:00 PM
City Hall, Council Chambers, Claremont, NH

**MINUTES
Approved 4/18/2017**

Mrs. Harlow called the meeting to order at 6:07 PM and asked for a roll call.

I. Roll Call

Present: Steve Wood, Gary Dickerman, Dianne Harlow, Scott Magnuson, Eileen Skowronski (arrived at 6:16 PM)

Absent: Kim Gogan, Nicholas Koloski

II. Review of Minutes of Preceding Meeting(s)

There were no minutes to review.

III. Finance Report

The Commission reviewed the latest Finance Report. There were no changes and no action was taken.

IV. Public Comment

Mrs. Harlow thanked the DPW for a job well done during the last snow storm.

V. Old Business

a. RFP for survey of rail trail

No new information was available. deForest will follow up with Nancy Merrill.

b. Set date for next workshop

The next workshop will be held on April 6th, 2017 at 6:00 PM at the Visitor Center.

c. Pollinator Gardens – update

Mrs. Harlow shared information and resource materials she had gathered from the pollinator garden workshop she had attended at the Montshire Museum. The Commission discussed various ideas and agreed they were making good progress on this project. A copy of the notes and resource materials are attached.

d. Annual Report to NHACC

Mrs. Harlow shared a draft annual report of the Commission's activities over the last year. The report will be submitted to the NHACC. The Commissioners made some additions. A copy of the final version is attached.

VI. New Business

a. Green-up Month

The City Manager is planning a Green-Up month for the City in April. Each weekend, clean-up efforts will be concentrated in one quadrant of the City.

Mrs. Harlow has offered the assistance of the Commission. She is awaiting details from the manager on how that will happen.

VII. **Communications**

- a. Upper Valley Land Trust (UVLT) Notification
Harvey and Christina Hill have donated 1,100 acres of land in Claremont, Charlestown and Unity to the UVLT
- b. UVLT Volunteer Training Location
Jason Bedard, Stewardship Director for the UVLT, has reached out to local Conservation Commissions in search of a suitable location for a volunteer training session on easements. Mrs. Harlow has offered the use of the CSB Community Center. The session is to be held on April 22nd from 9 AM – 4 PM, with a field trip to the easement recently donated by Harvey & Christina Hill (see above). All are invited to attend the training.
- c. Owl Brook
Mrs. Harlow received notification of a camp at Owl Brook Hunter Education Center, Holderness NH – summer youth programs. Free Youth Day Programs for boys and girls, ages 10-15, to learn about shooting sports, bow hunting and other outdoor skills. Sessions offered in July and August. Operated by Fish and Game Department; sessions are free of charge. Registration opens April 1st.
<http://www.wildlife.state.nh.us/hunting/owl-brook.html>
- d. Stevens Brook Easement
Mr. Dickerman said Nancy Merrill has reached out to Horizons Engineering for an estimate of the cost of finishing the survey, monumentation and signage to comply with the conditions of the permit. It was agreed that the Commission will stay on top of this and bear the expense of completing the project if needed.
- e. DES - Windsor Road
DES will be following upon a possible violation at 356 Windsor Road in the spring.
- f. DES Notification
DES is seeking more information on an application filed for 492 Washington Street.

VIII. **Other Business**

The Commission will hold its next regular meeting on Tuesday, April 18th to accommodate Mr. Wood's schedule.

IX. **Adjournment**

Motion: To adjourn the meeting.

Made by: Mr. Magnuson **Second:** Mr. Wood

Vote: Unanimous in favor

The meeting adjourned at 6:57 PM.

Respectfully submitted,

de Forest Bearse



CLAREMONT CONSERVATION COMMISSION

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PROJECTS UNDERTAKEN IN THE LAST TWELVE MONTHS:

- Removal of invasives in Moody Park with students from Stevens High School
- Identification of invasives done in a grid search with the students from Stevens High School
- Completion of Natural Resources Chapter for the City Master Plan
- Completion of Conservation Plan
- Monitored a conservation easement
- Improving protocol for Forest Management notifications

PLANS FOR THE NEXT TWELVE MONTHS:

- Complete a Master Plan for our Rail Trail
- Implement goals from our Natural Resources Master Plan
- Continue to monitor and eradicate invasives in our park system and open spaces
- Work toward recertifying our town as a Tree City
- Implement a newsletter for the Conservation Commission
- Oversee Forest Management Plan
- Signage for Stevens Brook Conservation Easement
- Pollinator Garden: create new ones; enhance existing ones

TOPICS OR CHALLENGES WE HAVE:

- DOT list
- Disseminating information to the public

Some notes from the Pollinator seminar on March 9th (Montshire Museum)

Key Ideas:

1. Pollinators are important
2. Pollinators are in decline
3. We can do something about it

80% of plants require pollination; 70% of crop plants require pollination Grapes do NOT require pollination

If you have misshapen fruit, it's because it didn't get pollinated

There are 275 species of Bumble Bees in Vermont; 20,000 species in the world Some of the causes of their decline include:

Parasites Viruses

Loss of Habitat

Organic farms receive more visits from pollinators than conventional farms Queen bumblebees need early pollinators like Willows and Dandelions to survive

Flower diversity in pollinator gardens are important. They need to be season long varieties.

Neonectinoids are a "nerve agent" that the bees get from the flowers and are one of the reasons bumble bees are declining. They are in insecticides and therefore the soil. They can also be used in plants that we purchase from the stores. RoundUp insecticide isn't a bad choice. See the XCRES Brochure for more information.

Some websites to check out:

inaturalist.org

e-butterfly.org

ebird.org

Gund Institute Rubenstein School

Vermont Atlas of Life: val.vtecostudies.org

Presenters:

Barbara Mcilroy - Hanover Biodiversity

Greg Napsy? - Montshire Museum Curriculum

Taylor Ricketts - UVM, Gund Institute Rubenstein School Kent McFarland, Sara Zahendra - Vt Center for Eco Studies Leif Richards-VT Atlas of Life and Author

LEIF RICHARDSON

RESEARCH INTERESTS (/RESEARCH-INTERESTS.HTML) PUBLICATIONS
(/PUBLICATIONS.HTML) BUMBLE BEES OF NORTH AMERICA (/BUMBLE-BEES-OF-NORTH-AMERICA.HTML)

Books

Williams, P.H., R.W. Thorp, **L.L. Richardson**, and S.R. Colla. 2014. Bumble bees of North America: an identification guide. Princeton University Press. Princeton, NJ, USA. ISBN: 978-0-691-15222-6. 208 pp. (Link

(<http://press.princeton.edu/titles/10219.html>))

(Media coverage: *A Way to Garden* (<http://awaytogarden.com/bumblebee-101-leif-richardson-win-new-field-guide/>), *Mongabay* (<http://blog.mongabay.com/2014/07/23/bumble-bees-of-north-america-book-review/>), *Northern Woodlands*

(http://northernwoodlands.org/wood_lit/entry/bumble-bees-north-america-identification-guide),

Quarterly Review of Biology (<http://www.jstor.org/stable/10.1086/678655>), *Washington Post*

(https://www.washingtonpost.com/opinions/two-books-on-the-bumblebee/2014/06/13/128fef3e-e0fb-11e3-8dcc-d6b7fede081a_story.html))

Peer-Reviewed Articles

14. Ricketts, T.H., K.B. Watson, I. Koh, A.M. Ellis, C.C. Nicholson, S. Posner, **L.L. Richardson**, and L.J. Sonter. 2016. Disaggregating the evidence linking biodiversity and ecosystem services. *Nature Communications*: 7:13106. (Link (<http://www.nature.com/articles/ncomms13106>))

13. de Keyser, C.W., S.R. Colla, C.F. Kent, N.E. Rafferty, **L.L. Richardson**, and J.D. Thomson. 2016. Delving deeper: Questioning the decline of long-tongued bumble bees, Long-tubed flowers and their mutualisms with climate change. *Journal of Pollination Ecology* 18(6): 36-42. (Link

(<http://www.pollinationecology.org/index.php?journal=jpe&page=article&op=view&path%5B%5D=396>))

12. **Richardson, L.L.**, R.E. Irwin and M.D. Bowers. 2016. Nectar chemistry mediates the behavior of parasitized bees:

Consequences for plant fitness. *Ecology* 97(2): 325-337. (Media coverage: *Discover Magazine*

([http://biogs.discovermagazine.com/inkfish/2015/09/01/parasitized-bees-may-self-medicate-with-](http://biogs.discovermagazine.com/inkfish/2015/09/01/parasitized-bees-may-self-medicate-with-nectar/#.VfGBYXuVipF)

http://www.sciencedaily.com/releases/2015/09/150901204819.htm?utm_source=dlvr.it&utm_medium=facebook.) (pdf

(/uploads/1/7/1/0/17103760/richardson_et_al._-_2016_-_nectar_chemistry_mediates_the_behavior_of_parasiti.pdf))

11. Sheffield, C.S., **L.L. Richardson**, 5. Cannings, H. Ngo, J. Heron and P.H. Williams. Biogeography and designatable units of *Bombus occidentalis* Greene and *B. terricola* Kirby (Hymenoptera: Apidae) with implications for conservation status assessments. 2016. Journal of Insect Conservation 20(2): 189-199. (Link

https://www.researchgate.net/publication/294278994_Biogeography_and_designatable_units_of_Bombus_occidentalis_Greene_and

10. Williams, P.H., A.M. Byvaltsev, B. Cederberg, M.V. Berezin, F. Odegaard, C. Rasmussen, **L.L. Richardson**, J. Huan,

C.S. Sheffield and S.T. Williams. 2015. Genes suggest ancestral colour polymorphisms cut across morphologically cryptic species in Arctic bumblebees. PLOS One 10(12): e0144544. (Link

https://www.researchgate.net/publication/286480460_Genes_Suggest_Ancestral_Colour_Polymorphisms_Are_Shared_across_Morph

9. **Richardson, L.L.** and R.E. Irwin. 2015. Floral ecology of turtletread (*Chelone glabra* L.; Plantaginaceae). Journal of Pollination Ecology 17(20): 132-144. (Link

[http://www.pollinationecology.org/index.php?](http://www.pollinationecology.org/index.php?journal=jpe&page=article&op=view&path%5B%5D=354)

[journal=jpe&page=article&op=view&path%5B%5D=354](http://www.pollinationecology.org/index.php?journal=jpe&page=article&op=view&path%5B%5D=354))

8. Kerr, J.T., A. Pindar, P. Galpern, L. Packer, S.G. Potts, S.M. Roberts, P. Rasmont, O. Schweiger, S.R. Colla, **L.L. Richardson**, D.L. Wagner, L.F. Gall, D.S. Sikes, A. Pantoja. 2015. Climate change impacts on bumblebees converge across continents. Science 349 (6244): 177-180. (Link

https://www.researchgate.net/publication/279942533_Climate_change_impacts_on_bumblebees_converge_across_continents_DOW (Featured in more than 500 news stories, including BBC <http://www.bbc.com/news/science-environment-33442006>),

CBC <http://www.cbc.ca/news/technology/climate-change-is-killing-off-bumblebees-study-1.3145014>), *Christian Science Monitor* (<http://www.csmonitor.com/Science/Science-Notebook/2015/07/10/Climate-change-turns-up-heat-on-bumblebees-video>), *Huffington Post* (http://www.huffingtonpost.co.uk/2015/07/09/climate-change-bumblebees-future-extinction_n_7764752.html), *LA Times* (<http://www.latimes.com/science/sciencenow/la-sci-sn-bumble-bees-climate-change-habitat-loss-20150709-story.html>), *Le Monde* (http://www.lemonde.fr/climat/article/2015/07/09/le-territoire-des-bourdons-se-retrécit-sous-l'effet-du-rechauffement-climatique_4677598_1652612.html), *Nature*

(<http://www.nature.com/news/climate-change-crushes-bee-populations-1.17950>), *NPR*

(<http://www.npr.org/sections/thesalt/2015/07/09/421499871/climate-change-is-squeezing-the>

<http://www.npr.org/sections/thesalt/2015/07/09/421499871/climate-change-is-squeezing-the>

<http://www.npr.org/sections/thesalt/2015/07/09/421499871/climate-change-is-squeezing-the>

<http://www.npr.org/sections/thesalt/2015/07/09/421499871/climate-change-is-squeezing-the>

bumblebees), *New York Times* (http://www.nytimes.com/2015/07/10/science/bumblebees-global-warming-shrinking-habitats.html?ref=collection%2Fsectioncollection%2Fscience&action=click&contentCollection=science®ion=stream&module=stream_unit&contentPlacement=5&pg&_r=1), *Reuters* (<http://www.reuters.com/article/2015/07/09/science-bees-idUSL1NOZM1L320150709>), *Science* (<http://www.sciencemag.org/content/349/6244/126.full>), *Scientific American*

(<http://www.scientificamerican.com/article/heat-puts-the-squeeze-on-bees/>) and *Washington Post* (<http://www.washingtonpost.com/news/energy-environment/wp/2015/07/09/bumblebee-habitats-are-shrinking-at-an-alarming-rate-and-scientists-are-blaming-climate-change/>).

7. **Richardson, L.L.**, Adler, L.S., Leonard, A.S., Andicoechea, J., Regan, K.H., Anthony, W.E., Manson, J.S., and Irwin, R.E. 2015. Secondary metabolites in floral nectar reduce parasite infections in bumblebees. *Proceedings of the Royal Society of London B: Biological Sciences* 282 (1803), 20142471. (Link https://www.researchgate.net/publication/272516374_Secondary_metabolites_in_floral_nectar_reduce_parasite_infections_in_bumblebees (Coverage in many media outlets, including *Deutschlandfunk* (http://www.deutschlandfunk.de/hilfe-gegen-parasiten-hummeln-behandeln-sich-mit-nikotin.676.de.html?dram:article_id=311988), *Nature*

(<http://www.nature.com/nature/journal/v518/n7540/full/518459d.html>), *New Scientist* (<https://www.newscientist.com/article/mg22630180-500-bitter-sweet-nectar-why-some-flowers-poison-bees/>), *Science Daily* (<http://www.sciencedaily.com/releases/2015/02/150217202931.htm>), *Scientific American* (<http://www.scientificamerican.com/podcast/episode/nectar-helps-bees-medicine-go-down/>), *The Independent* (<http://www.independent.co.uk/environment/tobacco-plants-could-help-dying-bumblebees-stay-healthy-10052209.html>), *Times of London* (http://www.thetimes.co.uk/tto/science/article4357354.ece?CMP=OTH-gnws-standard-2015_02_17), *Vice* (<http://motherboard.vice.com/read/the-most-addictive-ingredient-in-cigarettes-could-make-for-healthier-bees>), *Weather.com* (<http://www.weather.com/science/nature/news/nicotine-kills-parasites-bumblebees>), and *World Economic Forum* (<https://agenda.weforum.org/2015/02/could-this-save-the-worlds-bees/>))

10052209.html), *Times of London* (http://www.thetimes.co.uk/tto/science/article4357354.ece?CMP=OTH-gnws-standard-2015_02_17), *Vice* (<http://motherboard.vice.com/read/the-most-addictive-ingredient-in-cigarettes-could-make-for-healthier-bees>), *Weather.com* (<http://www.weather.com/science/nature/news/nicotine-kills-parasites-bumblebees>), and *World Economic Forum* (<https://agenda.weforum.org/2015/02/could-this-save-the-worlds-bees/>))

6. Irwin, R.E., **L.L. Richardson**, J.S. Manson, D.R. Gardner, and D. Cook. 2014. Secondary compounds in floral rewards: Impacts on pollinators. *Journal of Agricultural and Food Chemistry* 62(30): 7335-7344. (Link <https://doi.org/10.1021/jf40283a011>)

6. Irwin, R.E., **L.L. Richardson**, J.S. Manson, D.R. Gardner, and D. Cook. 2014. Secondary compounds in floral rewards: Impacts on pollinators. *Journal of Agricultural and Food Chemistry* 62(30): 7335-7344. (Link <https://doi.org/10.1021/jf40283a011>)

(https://www.researchgate.net/publication/261915468_Secondary_Compounds_in_Floral_Rewards_of_Toxic_Rangeland_Plants_Impa

5. Bowers, M.D. and **L.L. Richardson**. 2013. Use of two oviposition plants in populations of *Euphydryas phaeton* Drury (Nymphalidae). *Journal of the Lepidopterists' Society* 67(4): 299-301. (Link

(https://www.researchgate.net/publication/259460299_Use_of_Two_Oviposition_Plants_in_Populations_of_Euphydryas_phaeton_Dru

4. Colla, S.R., F. Gadallah, **L.L. Richardson**, D. Wagner and L. Gall. 2012. Assessing declines of North American bumble bees (*Bombus* spp.) using museum specimens. *Biodiversity and Conservation* 21(14): 3585-3595. (Link

(https://www.researchgate.net/publication/257538442_Assessing_declines_of_North_American_bumble_bees_Bombus_spp_using_m

3. **Richardson, L.L.** and J.L. Bronstein. 2012. Reproductive biology of pointleaf manzanita (*Arctostaphylos pungens*)

and the pollinator-nectar robber spectrum. *Journal of Pollination Ecology* 9(15): 115-123. (Link (<http://www.pollinationecology.org/index.php?journal=jpe&page=article&op=view&path%5B%5D=177>))

2. Millette, T.L., D. Slaymaker, E. Marcano, C. Alexander, and **L.L. Richardson**. 2011. AIMS-thermal--a thermal and high resolution color camera system integrated with GIS for aerial moose and deer census in northeastern Vermont. *Alces* 47: 27-37. (Link

([https://www.researchgate.net/publication/259460619_AIMS-](https://www.researchgate.net/publication/259460619_AIMS-thermal--a_thermal_and_high_resolution_color_camera_system_integrated_with_GI)

[thermal--a_thermal_and_high_resolution_color_camera_system_integrated_with_GIS_for_aerial_moose_and_deer_census_in_northe](https://www.researchgate.net/publication/259460619_AIMS-thermal--a_thermal_and_high_resolution_color_camera_system_integrated_with_GIS_for_aerial_moose_and_deer_census_in_northe)

1. Irwin, R.E., J.L. Bronstein, J.S. Manson, and **L.L. Richardson**. 2010. Nectar robbing: Ecological and evolutionary perspectives. *Annual Review of Ecology and Systematics* 41: 271-292. (Link

(https://www.researchgate.net/publication/234149092_Nectar_Robbing_Ecological_and_Evolutionary_Perspectives