Summary of Conversation Topics

• Brief review of last year
  o Discussions related to development boundaries and smart growth issues
  o Issues around water supply and watershed related to the various permitting that town and Durham need to be compliant with
    ▪ Ongoing effort, using EcoTF as a forum to share information and talk about ways that we could be engaging faculty in doing some of the upfront data collection

• Goals for this year
  o Biodiversity action plan
    ▪ Some tangible plan and framework and start to populate it
    ▪ Ask if it tells us what we need to know about managing landscape
  o Nitrogen Footprint
    ▪ Looked at UVA’s program
    ▪ Full sustainability assessment at UVA, Fiona has hardcopy, find online
      ▪ Video overview: www.n-print.org

• Sustainable Events
  o Analyzed commencement 2013
    ▪ Main issues focus on Transportation management post-event, waste and recycling (seems to be no recycling), and bottled water

Key Agreements

• Will try to “beat” CAST (Culture & Sustainability Task Force) on biodiversity plan. CAST is trying to get a Cultural Heritage plan in place
• Look into doing our own Nitrogen Footprint

Next Steps

The group identified the following next steps (or commitments) during the meeting:

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<tr>
<th>What</th>
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<tr>
<td>Share UVA Nitrogen Inventory</td>
<td>Tom Kelly share with John Aber &amp; Serita Frey;</td>
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Ecosystem Task Force
9/19/13
Detailed Notes

Participants
- Doug Bencks, Dir., Campus Planning
- Dave Cedarholm, Town of Durham
- Paul Chamberlin, VP of Facilities
- Jackie Cullen, Sustainability Institute at UNH
- Mark Ducey, Natural Resources and the Environment
- El Farrell, Sustainability Institute at UNH
- Fiona Gettinger, Task Force Student Ambassador
- Tom Kelly, Sustainability Institute at UNH
- Mike Palace, Earth Systems Research Center, UNHSI Faculty Fellow
- Pete Pekins, Natural Resources and the Environment

Facilitator: Doug Bencks and Mike Palace
Content Manager: Jackie Cullen

Welcome and Introductions
New Member: Fiona Gettinger: Ambassador
- Junior self-designed major environmental policy, politics and philosophy
- SEAC and divestment campaign
- 4 students on each task force, doing a join project for URC in the spring. Spending a couple hours a week doing work related to the task force or communications, blog writing etc.

Brief Review of last year and goals for this year
Last year
- Discussions related to development boundaries and smart growth issues

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<td>Convene the biodiversity inventory subcommittee</td>
<td>Mike Palace</td>
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At this stage it’s put to the side based on the current status where we’re not talking about any real significant growth outside of the developed boundaries.

- Tom Lee leading analysis of college woods, horticultural farm area is currently being analyzed.
- Woodlands meeting is reviewing 1st draft of assessments of horticultural lands.
- Also will be reviewed by Land Advisory Committee later in October.

- Horticultural farm has a new fence.
  - Issues with animals and people, taking research crops.
- Issues around water supply and watershed related to the various permitting that UNH and Durham need to be compliant with.
  - Ongoing effort, using EcoTF as a forum to share information and talk about ways that we could be engaging faculty in doing some of the upfront data collection.
  - Effort is now in place with Michelle Daley and Will Wollheim.
  - Dave C: integrated watershed management plan is going “great guns” with the town and university.
    - $500k investment just this year, true partnership.
    - UNH Facilities is managing water quality monitoring piece.
    - Contracted with Will Wollheim for remote sensing.
    - 3 boxes of multi instruments collecting nitrogen, nitrate, temp, turbidity, connectivity, PH.
    - To supplement that: 200 grab samples monthly through watershed.
    - 6 or 8 other data loggers recording connectivity on a minute-by-minute basis, which correlates well with nitrate.
    - Measures ionic connectivity of the water.
    - Establishes a baseline for the year, huge volume of data being collected weekly.
    - All collected this year and put into a report.
    - Town has contracted with a consulting team to develop a written integrated watershed plan.
      - Integrate wastewater discharge permit, storm water discharge and UNH wastewater discharge into one permit.
      - Rather than deal with 3 piecemeal like in the past, working to combine into one.
      - First community in the nation to go down this path full steam, a couple more but EPA has given us a huge thumbs up.
      - Grew out of a couple of memos that came out last year encouraging communities to take more of an integrated water quality planning strategy.
      - Visited by Nancy Stoner, author of memos, in July.
        - She is #2 nationwide in the EPA; has been encouraging companies to do this.

- Question: Case study.
- **VHB (???)** is developing a plan that will include tech memos from this year to meeting minutes.
  - Also developing computer model for Oyster River watershed using state's nutrient model as a framework.
  - State developed similar model for Great Bay, only 5 nodes for Oyster watershed.
  - **VHB** has taken that model and refined to a parcel scale. Looking closely as sub-drainage areas in watershed, particularly in urban center, UNH and town

- **Project with Nancy Kinner**
  - Senior Capstone, urine recycling and reuse. 90% of nitrogen at wastewater plant is from urine.
    - Have “very active, young population” that produces a lot.
  - Visited Brattleboro, VT; working with public works, 200 residents who are collecting their urine, working with a farmer who does all of his farming with horses,
    - Hay fields are very important.
    - Have a grant from EPA to do water quality monitoring, ground and surface, in perimeter of field
    - Last year applied 600 gal of urine in two different strengths, boosted hay production by six times.
    - First permit in the country to apply urine for agricultural fertilizer
    - Very common in Sweden, Germany, developing world
    - This year permit to apply 3000 gallons, $15000 to work with
    - Pretreated, researching methods of pasteurizing
    - A few have urine separating toilets, use a jug system, carbon filter,
      - Local septic hauler that helps with transport from facility to farm,
      - Two pasteurizing systems, one with a solar panel, simple more greenhouse operation as well.
    - Amish people in PA built a cart to put behind the horses with a spreader

- **Possibilities for that type of system here**
  - Already have some local farmers interested in idea
  - Legal in NH? Permit process not in place yet.
  - Debated a 319 grant to move it forward but allowing it to move forward with Nancy and her students

- **What about drugs in the urine?**
  - Unsure of what the system is in Brattleboro

- **Looking more at mechanic of how to collect it, supporting port-o-potties,**
  - Mobile wagon?

- **Patch of ground involved at this point? Not yet, some farmers in area interested.**
  - Can evaporate liquid to get a solid fertilizer
• Can also be used to melt snow
  • Used to dissolve snow, was used previously, spread a
    brown urea mix on campus
  • Disabled student had an accident on motorized chair,
    because of no salt
  • Every time we talk about chloride in water, it comes down
    to we’ll get sued without adequate melting
    o Level of “adequate” keeps getting higher
• Issue with so many dairy farmers is what to do with excess
  manure
  • Never been supported with permits/funding
• Another conversation is redoing the digester at conventional
  dairy
  • May require mixing manure with sludge from wastewater
    plant
  • Ties into agriculture discussion of where the nutrients are
    going to come from?
    o Is collecting urine the way to go?
• Subject came up at town council meeting recently about manure
  UNH spreads
  • Regular waves of complaints,
  • Dave explained at meeting that we’re in baseline
    monitoring right now and not changing anything we’re
    doing so that results are accurate
    o May be able to make a real impact on nitrogen issue
      in water with better management of fields and lands,
      non point source
• Know Paul Stacey from great bay estuary?
  • Have decided a technical advisory committee needs to be
    formed
• Would be great to get a field test associated with Kinner’s project
  • Might not be possible for their project but Dave fully
    intends to carry it through and try to get something
    permitted by 2014/15 applications
• Baltimore county makes bio-solids for applications
  • Big problem is heavy metals
  • Hormones/pharmaceuticals in water is a huge problem

Goals for year
• Biodiversity action plan
  o Some tangible plan and framework and start to populate it
  o Ask if it tells us what we need to know about managing landscape
  o Turn it into a competition?
  o CAST doing a similar thing with cultural heritage, see who gets it up and
    running first
    • Meeting with Tom Lee’s land committee when they first meet for
      input
Biodiversity action plan: ID questions and set goals. Review UVA’s nitrogen inventory

Biodiversity Action Plan
• Started mid-late last semester: how to do an overarching plan.
  • Met with Tom Lee, Mark Ducey, not yet Jim Haney
    o Believe there are some things easier to start to estimate/quantify, plan inventory, trees, larger vertebrates
    o Talking to Steve Hale about a bird survey
  • Might be a year before a good fungal diversity study
  • Survey done on campus of trees, should be incorporated
  • Can pick different aspects but are they coherent on indicating
  • Talking to experts on indicator species
  • Jim H has some camera traps
  • Insects might be a good target
  • ID areas that are beneficial to species
    o Know what areas to protect if there are plans that come up to cut into college woods for development (for example)
  • Never been able to arrive at what the integrated suite of indicators are
    o Want to get started on low hanging fruit
    o Jim H has some aquatic invertebrates
  • Strategy is for certain categories
    o Start with College Woods
    o Once we get longer term info, tree/bird species will look at larger UNH area

UVA Nitrogen Plan
• Did same model for a carbon footprint but applied to nitrogen
• Based on 2010 levels
• UVA: 48% utilities, second highest 37% food production
  o Distinguished food production and consumption
  o Production is part of Aramark system
• How to establish and reach goals for 2025
  • Page 216 of report
    o Found could reduce by 31% in 2025 based on the 2025 estimate
    o Based on business as usual reduced by 8%
• Want to reduce by 25% based on 2009 levels by 2025
• Methods:
  o Sewage treatment
  o Transportation demand management
  o Meatless Mondays
• Full sustainability assessment at UVA, Fiona has hardcopy, find online
  o Video overview: www.n-print.org
• Clear overlap with WildCAP
• Electricity Nitrogen is Nox emissions due to energy usage (power plant)
• UVA students live mostly off campus after the first year, ours would look much different for that reason
  o Off-campus is still within walking distance
  o Balancing of our larger on campus, commuting etc.
• If done on a town-wide scale, then separate town from UNH, concern about students living off campus dealt with
  o Useful from community standpoint and impact on the watershed
  o Might not be a big exercise if a lot of the work is already done.
  o Dave C can share with consultants
  o Tom can share it with John Aber

**Sustainable Events Update**

**Commencement results**

• All Task Force chairs have identified an initiative to look at how to make events more sustainable.
• Analyzed commencement 2013
• Put together a summary of the information gathered, in anticipation of presenting to cabinet
  o Sharing what was found and potential opportunities
• Having conversations with different groups on campus
  o presidential events, dining, transportation, facilities
• How to better align sustainability at events to UNH’s commitment to sustainability writ large
• Identified some good potential strategies
  o Transportation: not well orchestrated after event
  o Offering wildcat transit next year
• Can be a whole page on sustainability
• Big waste problems and water issues
• Selling water
  o Another level of a bad message in that parents are getting asked to buy water
• Adding transparency to honorary degrees, speakers etc.
  o Do they reflect the values of the institution?