THE ECONOMICS OF NATURAL RESOURCES RECREATION ON FORT DRUM

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FORT DRUM
MILITARY
INSTALLATION

Total Size: 108,733 acres
Fort Drum is an active US Army installation and largest training area for Reserve and Guard units in the northeastern US...
...and we are one of the largest tracts of public land available for recreation in the northeastern US.
<table>
<thead>
<tr>
<th>STATUS</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
<th>FY 11</th>
<th>FY 12</th>
<th>FY 13</th>
<th>CY 14</th>
<th>CY 15</th>
<th>CY 16</th>
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<tbody>
<tr>
<td>Active Military</td>
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<td>636</td>
<td>461</td>
<td>712</td>
<td>646</td>
<td>772</td>
<td>1041</td>
<td>1362</td>
<td>1413</td>
<td>2009</td>
<td>-</td>
<td>1642</td>
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<tr>
<td>Retired Military</td>
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<td>108</td>
<td>150</td>
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<td>176</td>
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<td>253</td>
<td>215</td>
<td>273</td>
<td>280</td>
<td>295</td>
<td>282</td>
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<td>Military Family Member</td>
<td>558</td>
<td>292</td>
<td>261</td>
<td>277</td>
<td>272</td>
<td>500</td>
<td>547</td>
<td>824</td>
<td>701</td>
<td>732</td>
<td>576</td>
<td>496</td>
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<td>DoD Civilian</td>
<td>74</td>
<td>75</td>
<td>115</td>
<td>141</td>
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<td>195</td>
<td>207</td>
<td>187</td>
<td>241</td>
<td>175</td>
<td>178</td>
<td>172</td>
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<tr>
<td>General Public</td>
<td>1751</td>
<td>1649</td>
<td>1818</td>
<td>1954</td>
<td>1916</td>
<td>1898</td>
<td>2582</td>
<td>2000</td>
<td>2162</td>
<td>1869</td>
<td>1854</td>
<td>1777</td>
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<td>TOTAL</td>
<td>3396</td>
<td>2760</td>
<td>2805</td>
<td>3245</td>
<td>3156</td>
<td>3575</td>
<td>4630</td>
<td>4588</td>
<td>4790</td>
<td>5065</td>
<td>4545</td>
<td>4153</td>
</tr>
</tbody>
</table>

Fort Drum is open to the public.
Natural resources recreation is important… (and should be managed by natural resources managers)

Just like…attending conferences/meetings & networking with is peers important!

What is its value?
Is Natural resources recreation important?

What is the value of your best moment?

Fort Drum in 2015.
Is Natural resources recreation important?

What is the value of your first moment?

Suzanna Rainbolt, age 3, at Remington Pond on Fort Drum.
Is Natural resources recreation important?
What is the value of your heritage?

Remington Pond on Fort Drum.

Woods Mills, NY which is now inside the Impact Area of Fort Drum ca. 1933.
Is Natural resources recreation important?

What is the value of spending time together & making memories?

Remington Pond on Fort Drum.
Is Natural resources recreation important?

What is the value of peace, serenity, or spiritual connection?

Indian River on Fort Drum.
Is Natural resources recreation important?

What is the value of being a part of society/living?

Rich Fabend, Depauville, NY

HandiHelp.net
Although we all know natural resources recreation is important...it is characterized by the following when it comes to funding & priorities:

“Nice To Have”
“Nice To Do”
“Class 3”
“Non-essential”
“Sikes Act”
“Market Failure”
Recreation is considered a “Market Failure” to economists because an economic value can not be assigned...it’s not making widgets in a factory.

This is the case in all aspects of natural resources management short of the timber value of trees or mineral value of ore.
The “value” of natural resources is priceless...or impossible...it’s comparing apples (the actual $ cost of doing business) and oranges (either intrinsic value—the value of my enjoyment or solitude, incalculable costs—trees providing oxygen or wetlands filtering pollutants, or some hypothetical cost avoided in the future).
This the same challenge DoD will face trying to determine a return on investment for real $ expenditures for endangered species that benefits the military mission in hypothetical scenarios in the future that didn’t happen because of proactive management in the present.
Despite the difficulty, we still try our best to compare apples with apples.

So, we use economic models to put a $ value on recreation.
And, this should be a timely topic as many installations transition into new systems to administer recreation passes….or, we probably already have a lot of data locked away in file cabinets.
Use Zip Codes to “paint a picture” of your recreational users...
Use data to determine the intended activity of your recreational users......
## Intended Activity: Permit Types

<table>
<thead>
<tr>
<th>Year</th>
<th>Big Game Hunting Only</th>
<th>Small Game Hunting Only</th>
<th>Fishing Only</th>
<th>Trapping Only</th>
<th>Combo I (All Hunting &amp; Fishing)</th>
<th>Combo II (All Hunt, Fish &amp; Trap)</th>
<th>Other Activities Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03</td>
<td>1233</td>
<td>511</td>
<td>653</td>
<td>22</td>
<td>421</td>
<td>49</td>
<td>428</td>
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<tr>
<td>2003-04</td>
<td>1017</td>
<td>545</td>
<td>876</td>
<td>26</td>
<td>380</td>
<td>44</td>
<td>413</td>
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<td>2004-05</td>
<td>1186</td>
<td>659</td>
<td>1156</td>
<td>21</td>
<td>495</td>
<td>42</td>
<td>398</td>
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<td>2005-06</td>
<td>1076</td>
<td>601</td>
<td>919</td>
<td>24</td>
<td>444</td>
<td>37</td>
<td>185</td>
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<tr>
<td>2006-07</td>
<td>874</td>
<td>513</td>
<td>687</td>
<td>28</td>
<td>540</td>
<td>54</td>
<td>303</td>
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<td>2007-08</td>
<td>973</td>
<td>545</td>
<td>869</td>
<td>23</td>
<td>594</td>
<td>61</td>
<td>360</td>
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<td>2008-09</td>
<td>987</td>
<td>601</td>
<td>836</td>
<td>26</td>
<td>598</td>
<td>56</td>
<td>374</td>
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<tr>
<td>2009-10</td>
<td>979</td>
<td>600</td>
<td>1161</td>
<td>24</td>
<td>728</td>
<td>54</td>
<td>494</td>
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</tbody>
</table>
Use annual surveys to get a more refined idea of what your recreational users actually did…

Actual Activity: Annual Harvest Surveys

<table>
<thead>
<tr>
<th>SPECIES</th>
<th># DAYS CHECKED IN</th>
<th># ANIMALS HARVESTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>White-tailed Deer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Bear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wild Turkey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruffed Grouse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodcock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterfowl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rabbit/Hare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squirrel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coyote</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bobcat</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Actual Activity: Annual Harvest Surveys**

**HUNTING ON FORT DRUM**
**TOTAL HUNTERS SURVEYED: 1162 (minimum #)**

<table>
<thead>
<tr>
<th>SPECIES</th>
<th># OF HUNTERS</th>
<th># DAYS CHECKED IN</th>
<th>AVG # HUNTING DAYS/HUNTER</th>
<th># ANIMALS HARVESTED</th>
<th>AVG # HARVESTED / HUNTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>White-tailed Deer</td>
<td>916</td>
<td>13717</td>
<td>15</td>
<td>189</td>
<td>0.21</td>
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<tr>
<td>Black Bear</td>
<td>176</td>
<td>1992</td>
<td>11</td>
<td>10</td>
<td>0.06</td>
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<tr>
<td>Wild Turkey</td>
<td>194</td>
<td>1200</td>
<td>6</td>
<td>31</td>
<td>0.16</td>
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<tr>
<td>Ruffed Grouse</td>
<td>124</td>
<td>747</td>
<td>6</td>
<td>217</td>
<td>1.75</td>
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<tr>
<td>Woodcock</td>
<td>72</td>
<td>504</td>
<td>7</td>
<td>456</td>
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<tr>
<td>Waterfowl</td>
<td>45</td>
<td>389</td>
<td>9</td>
<td>203</td>
<td>4.51</td>
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<tr>
<td>Rabbit/Hare</td>
<td>141</td>
<td>940</td>
<td>7</td>
<td>471</td>
<td>3.34</td>
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<tr>
<td>Squirrel</td>
<td>32</td>
<td>120</td>
<td>4</td>
<td>32</td>
<td>1.0</td>
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<tr>
<td>Coyote</td>
<td>13</td>
<td>134</td>
<td>10</td>
<td>6</td>
<td>0.46</td>
</tr>
<tr>
<td>Bobcat</td>
<td>3</td>
<td>31</td>
<td>10</td>
<td>4</td>
<td>1.33</td>
</tr>
</tbody>
</table>
or daily surveys if you have a check-out system to get “real time” data of what your recreational users are doing...
By adding a few more questions to your survey, you can get more information on the economics of recreation…

Actual Activity: Economic Survey

1. What is your permit #?

2. Was the main reason for your visit to the area to enjoy the recreational services at Fort Drum? (YES/NO)

3. What was the main purpose of your trip? (Small Game Hunting, Big Game Hunting, Fishing, Camping, Other)
Actual Activity: Economic Survey

4. During your visit to Fort Drum, what was the total estimated money you spent on each of the following items:
   - Gas
   - Air or Rail Transportation
   - Lodging
   - Food & Beverages from bars/restaurants
   - Food & Beverages from other
   - Sporting Equipment
   - Other Entertainment
   - Other Expenses
5. What is your gender?

6. In which of the following range was your income last year?
   - Less than $30,000
   - $30,000-$59,999
   - $60,000-$89,999
   - $90,000-$119,999
   - $120,000-$149,999
   - $150,000 or more

7. What is your highest level of education?
   (Middle School, High School, 1-2 Years of College, 3-4 Years of College; Post-Baccalaureate)
Oldest approach to value the environment—and still considered the best tool for valuating recreational experiences: anglers, beachgoers, birdwatchers, hikers, picnickers, mountain bikers, etc.

Time = Money…when individuals travel to visit a site, they incur costs in the form of time and money and these expenditures reveal info regarding values they place on the amenities of the chosen site.
TRAVEL COST METHOD

Based on number of people getting a pass the following year and filling out a survey.

- Distance to Fort Drum’s Cantonment Area from village/city of recreationists on Google Maps (families or persons with same address were grouped) – (.35¢/mile)

- Distance traveling on Fort Drum (30 miles at .35¢/mile)

- Food & Lodging (if traveling more than 100 miles, estimated $100/night)

- Time Recreating – assumes 2 hours driving & 5 hours recreating per day ($7.25/hour)

- Passes – now free, but originally were $5-$35

- No equipment costs were included
Is Natural Resources Recreation important on Fort Drum?

FY 2008: $1,242,260*
FY 2009: $1,706,830*
FY 2010: $1,607,466*
FY 2011: $1,676,715*

*: EXTREMELY CONSERVATIVE ESTIMATES

• We minimized our cost estimates.
• Only persons that renewed their passes the following year were included in the survey.
• Only persons that responded to the survey were included.
POSSIBLE RESEARCH QUESTIONS

What is the willingness to pay for the use of Fort Drum’s recreational services?

- Willingness to pay is being calculated by estimating the demand curve for the recreational services using the number of trips that visitors make from different distances = Travel Cost Method (but more refined)
POSSIBLE RESEARCH QUESTIONS

Is there any difference in the willingness to pay by:

- Status: active military, retired military and general public?
- Level of income?
- Level of education?
- Gender?
- Residence (local or out of town)?
- Activity: hunting, fishing, camping?
POSSIBLE RESEARCH QUESTIONS

What is the magnitude of the impact that Fort Drum has on the local economy?

- Additional analysis will be through Implan: software package for economic impact analyses for planning

- Analyzes the interdependence of industries in an economy and constructed from observed economic data for a specific geographic region.
POSSIBLE RESEARCH QUESTIONS

Is it worth implementing a new recreational activity/facility/service?

- With additional survey questions included with economic analysis, you can determine the value of proposed activities.
QUESTIONS?

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Fort Drum Natural Resources

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