Preparing the report...

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Summary
This report presents results of law enforcement and gorilla monitoring patrols organized by Wildlife Conservation Society (WCS) in the Mbe Mountains from July to September 2019. Seventeen patrols were completed during this reporting period. The patrols covered a total distance of 807 kilometers over 129 patrol days (616 person-days). Seven offenders were apprehended and 2,399 wire snares and 2 hunting camp were destroyed. All offenders apprehended were reported to the Conservation Association of Mbe Mountains (CAMM) for sanctions. Other signs of human activity encountered during the patrols were 145 empty cartridges, 3 gunshots heard and 3 illegal logging sites. Apes were sighted 6 times during this reporting period: gorillas on two occasions, chimpanzees on 4 occasions. Thirty-four ape nest sites were also encountered: 24 gorilla and 10 chimpanzee. Other primates observed include drill (sighted 10 times), red-eared monkey (sighted 13 times), Mona monkey (sighted 34 times), and putty-nosed monkey (sighted 28 times).

Methods
Two teams of seven eco-guards each based at different camps completed two 10-day patrols per month, patrolling different sectors of the sanctuary simultaneously. Patrols followed existing trails but targeted known and suspected hotspots of human activities based on intelligence gathered from the surrounding villages and data from previous patrols. Data were collected using CyberTracker software on handheld computer devices and analyzed in SMART (http://smartconservationtools.org/). All offenders encountered were apprehended and all wire snares and hunting camps found were destroyed.

Results
Patrol effort
Seventeen patrols were completed covering a total distance of 807 kilometers in 129 patrol days (Figure 1, Table 1).
Figure 1. Patrol track-logs and patrol effort per grid cell recorded during patrols from July to September 2019. (Darker red color indicates areas of more intense patrol coverage).

Table 1. Summary of patrol effort from July to September 2019.

<table>
<thead>
<tr>
<th>Patrol ID</th>
<th>Number of Patrols</th>
<th>Number of Days</th>
<th>Distance (km)</th>
<th>Person - Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>mbe_mts_000226</td>
<td>1</td>
<td>8</td>
<td>47.9</td>
<td>40</td>
</tr>
<tr>
<td>mbe_mts_000227</td>
<td>1</td>
<td>8</td>
<td>59.5</td>
<td>37</td>
</tr>
<tr>
<td>mbe_mts_000228</td>
<td>1</td>
<td>8</td>
<td>51.7</td>
<td>40</td>
</tr>
<tr>
<td>mbe_mts_000229</td>
<td>1</td>
<td>8</td>
<td>54.8</td>
<td>32</td>
</tr>
<tr>
<td>mbe_mts_000230</td>
<td>1</td>
<td>8</td>
<td>37.3</td>
<td>40</td>
</tr>
<tr>
<td>mbe_mts_000231</td>
<td>1</td>
<td>8</td>
<td>67.3</td>
<td>46</td>
</tr>
<tr>
<td>mbe_mts_000232</td>
<td>1</td>
<td>8</td>
<td>29.9</td>
<td>40</td>
</tr>
<tr>
<td>mbe_mts_000233</td>
<td>1</td>
<td>8</td>
<td>52.5</td>
<td>40</td>
</tr>
<tr>
<td>mbe_mts_000234</td>
<td>1</td>
<td>8</td>
<td>52.2</td>
<td>32</td>
</tr>
<tr>
<td>mbe_mts_000235</td>
<td>1</td>
<td>8</td>
<td>49.3</td>
<td>32</td>
</tr>
<tr>
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<td>8</td>
<td>64.2</td>
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<tr>
<td>mbe_mts_000237</td>
<td>1</td>
<td>8</td>
<td>54.9</td>
<td>40</td>
</tr>
<tr>
<td>mbe_mts_000238</td>
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<td>12</td>
<td>39.5</td>
<td>48</td>
</tr>
<tr>
<td>mbe_mts_000239</td>
<td>1</td>
<td>3</td>
<td>15.8</td>
<td>16</td>
</tr>
<tr>
<td>mbe_mts_000240</td>
<td>1</td>
<td>6</td>
<td>41.4</td>
<td>24</td>
</tr>
<tr>
<td>mbe_mts_000241</td>
<td>1</td>
<td>9</td>
<td>63.6</td>
<td>54</td>
</tr>
<tr>
<td>mbe_mts_000242</td>
<td>1</td>
<td>3</td>
<td>25.3</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>129</strong></td>
<td><strong>807.1</strong></td>
<td><strong>616</strong></td>
</tr>
</tbody>
</table>
Figure 2. Average distance covered and time taken per patrol per month, July to September 2019.

Figure 3. Total patrol distance and time per month, July to September 2019.
Law Enforcement
Seven persons were apprehended for different infractions including two Cameroonian refugees resident in Abo Mkpang who were caught hunting in the sanctuary (Table 2). All offenders apprehended were reported to CAMM for appropriate sanctions. Other signs of human activity observed during these patrols include 2,399 wire snares, 145 used cartridge shells, and 2 hunters camps, all destroyed. Three gunshots were heard and three illegal logging sites were seen.

Table 2. Summary of arrests and other law enforcement from July to September 2019.

<table>
<thead>
<tr>
<th>Leader</th>
<th>Date</th>
<th>Action Taken</th>
<th>Home Village</th>
<th>Name</th>
<th>Threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Abraham</td>
<td>Jul 25, 2019</td>
<td>Apprehended and reported</td>
<td>Refugee resident in Abo Mkpang (from Kalumo in</td>
<td>Samuel Etor</td>
<td>Trapping</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Akwaya, Cameroon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peter Abraham</td>
<td>Jul 25, 2019</td>
<td>Apprehended and reported</td>
<td>Refugee resident in Abo Mkpang (from Kalumo in</td>
<td>Atigi Benjamin</td>
<td>Trapping</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Akwaya)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jacob Osang</td>
<td>Jul 26, 2019</td>
<td>Apprehended and reported</td>
<td>Bamba</td>
<td>Anne Mkpe</td>
<td>NTFP Collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jacob Osang</td>
<td>Jul 26, 2019</td>
<td>Apprehended and reported</td>
<td>Bamba</td>
<td>Perter</td>
<td>NTFP Collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jacob Osang</td>
<td>Jul 26, 2019</td>
<td>Apprehended and reported</td>
<td>Bamba</td>
<td>Beatrice Abang</td>
<td>NTFP Collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jacob Osang</td>
<td>Jul 26, 2019</td>
<td>Apprehended and reported</td>
<td>Bamba</td>
<td>Mercy</td>
<td>NTFP Collection</td>
</tr>
<tr>
<td>Justin Bebiem</td>
<td>Aug 24, 2019</td>
<td>Apprehended and reported</td>
<td>Bamba</td>
<td>Ochang Abang</td>
<td>Hunting</td>
</tr>
</tbody>
</table>

Table 3. Summary of number of people seen by threat from July to September 2019.

<table>
<thead>
<tr>
<th>Threat</th>
<th>Number of people seen</th>
<th>Encounter rate per km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunting</td>
<td>3</td>
<td>0.004</td>
</tr>
<tr>
<td>NTFP Collection</td>
<td>4</td>
<td>0.005</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Table 4. Number of incidents and encounter rates of signs of human activity recorded during patrols from July to September 2019.

<table>
<thead>
<tr>
<th>Activity</th>
<th># of Incidents</th>
<th>Encounter rate/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming and land clearing</td>
<td>5</td>
<td>0.006</td>
</tr>
<tr>
<td>Gunshot heard</td>
<td>3</td>
<td>0.004</td>
</tr>
<tr>
<td>Human sign</td>
<td>40</td>
<td>0.050</td>
</tr>
<tr>
<td>Logging and tree cutting</td>
<td>3</td>
<td>0.004</td>
</tr>
<tr>
<td>People seen</td>
<td>3</td>
<td>0.004</td>
</tr>
<tr>
<td>Shed or camp</td>
<td>2</td>
<td>0.002</td>
</tr>
<tr>
<td>Traps, weapons &amp; equipment</td>
<td>161</td>
<td>0.199</td>
</tr>
<tr>
<td>Total</td>
<td>217</td>
<td>0.269</td>
</tr>
</tbody>
</table>

Table 5. Details of logging activity recorded during patrols from July to September 2019.

<table>
<thead>
<tr>
<th>Type of logging evidence</th>
<th>Action taken - items</th>
<th>Age of sign</th>
<th>Number of cut pieces</th>
<th>Number of logs</th>
<th>Number of planks</th>
<th>Tree species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stump</td>
<td>Seen only</td>
<td>Recent</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Other</td>
</tr>
<tr>
<td>Stump</td>
<td>Seen only</td>
<td>Recent</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Other</td>
</tr>
<tr>
<td>Logs</td>
<td>Destroyed</td>
<td>Recent</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>Ebony</td>
</tr>
</tbody>
</table>
a) Wire snares  
b) Empty cartridges  
c) Sheds and camps  
d) Farms in circles, gunshots heard in crosses, and logging in squares.

Figure 4. Distribution of all signs of human activity recorded during the period from July to September 2019.
Table 6. Hunting signs recorded during patrols from July to September 2019.

<table>
<thead>
<tr>
<th>Sign</th>
<th># of Observations</th>
<th>Encounter rate/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunshots heard</td>
<td>3</td>
<td>0.004</td>
</tr>
<tr>
<td>Set wire snares</td>
<td>2,108</td>
<td>2.612</td>
</tr>
<tr>
<td>Unset wire snares</td>
<td>291</td>
<td>0.361</td>
</tr>
<tr>
<td>Empty cartridges</td>
<td>145</td>
<td>0.180</td>
</tr>
<tr>
<td>Hunting camps</td>
<td>2</td>
<td>0.002</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,549</strong></td>
<td><strong>3.159</strong></td>
</tr>
</tbody>
</table>

Wildlife Observations

Great Apes

Apes were sighted six times during this period: gorilla twice, chimpanzees four times including a troop of 9 individuals (Table 7). Thirty-four nest sites were also observed: 24 gorilla and 10 chimpanzee. Other signs of great ape recorded include fresh trails and paths, dung, feeding remnants and calls.

![Ape sightings and nest sites recorded during patrols from July to September 2019. (Nest sites shown as circles, sightings shown as crosses).](image)

Figure 5. Ape sightings and nest sites recorded during patrols from July to September 2019. (Nest sites shown as circles, sightings shown as crosses).

Table 7. Ape sightings recorded during patrols from July and September 2019.

<table>
<thead>
<tr>
<th>Date</th>
<th>Species</th>
<th>Number of adult males</th>
<th>Number of adult females</th>
<th>Number age/sex unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul 24, 2019</td>
<td>Gorilla</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Jul 30, 2019</td>
<td>Chimpanzee</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Aug 26, 2019</td>
<td>Chimpanzee</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Sep 20, 2019</td>
<td>Chimpanzee</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Sep 22, 2019</td>
<td>Gorilla</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Sep 28, 2019</td>
<td>Chimpanzee</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>
Table 8. Number and encounter rate of nest sites recorded during patrols from July to September 2019.

<table>
<thead>
<tr>
<th>Species</th>
<th>Number of nest sites</th>
<th>Encounter rate of nest sites per km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chimpanzee</td>
<td>10</td>
<td>0.012</td>
</tr>
<tr>
<td>Gorilla</td>
<td>24</td>
<td>0.030</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>0.042</td>
</tr>
</tbody>
</table>

Table 9. Nest sites recorded during patrols from July to September 2019.

<table>
<thead>
<tr>
<th>Species</th>
<th>Nest site type</th>
<th>Dung present</th>
<th>Age of sign</th>
<th>Number of ground nests</th>
<th>Total number of nests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Old</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Old</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Day nest(s)</td>
<td>false</td>
<td>Recent</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Chimpanzee</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Old</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Recent</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Recent</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>9</td>
<td>10</td>
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<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
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<td>Fresh</td>
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<td>3</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Day nest(s)</td>
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<td>Fresh</td>
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<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
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<td>Fresh</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Day nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>true</td>
<td>Fresh</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Day nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Night nest(s)</td>
<td>false</td>
<td>Fresh</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Monkey sightings

Monkeys were sighted a total of 85 times during patrols this quarter. Most of the sightings were in the eastern axis of the sanctuary in the area between Mbeb Camp and Obue’s Camp and the corridor area between Mbe and the Okwangwo Division of Cross River National Park. Mona monkey *Cercopithecus mona* and putty-nosed monkey *Cercopithecus nictitans* were the most frequently sighted (34 times and 28 times respectively). Drills were sighted 10 times (Table 10).
Figure 6. Monkey sightings recorded during patrols from July to September 2019.

Table 10. Number and encounter rate of monkey species observed during patrols from July to September 2019.

<table>
<thead>
<tr>
<th>Species</th>
<th>Number of observations</th>
<th>Encounter rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill</td>
<td>10</td>
<td>0.012</td>
</tr>
<tr>
<td>Mona monkey</td>
<td>34</td>
<td>0.042</td>
</tr>
<tr>
<td>Red-eared monkey</td>
<td>13</td>
<td>0.016</td>
</tr>
<tr>
<td>Putty-nosed monkey</td>
<td>28</td>
<td>0.035</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>0.105</td>
</tr>
</tbody>
</table>

Other wildlife
Other mammals recorded this quarter include forest elephant *Loxodonta cyclotis*, bushbuck *tragelaphus scriptus*, water chevrotain *Hyemoschus aquaticus*, red river hog *Potamochoerus porcus*, and yellow-backed duiker *Cephalophus silvicultr* (see Appendix II for full list of species recorded). Among those sighted were red river hog, rock hyrax, cusimanse, duikers, bats and squirrels.
**Support to CAMM**
This quarter WCS supported a joint meeting of the General Assembly, BoT and Management Committee of CAMM to discuss conservation issues including illegal activities reported by eco-guards with particular emphasis on poaching and farmland encroachment.

**Acknowledgements**
WCS is formally registered in Nigeria through an agreement with the Ministry of Budget and National Planning of the Federal Republic of Nigeria. We are immensely grateful to the Great Ape Conservation Fund of the United States Fish and Wildlife Service. We are also grateful to all other donors who support our work in the Mbe Mountains including Darwin Initiative, Whitley Fund for Nature, Critical Ecosystem Partnership Fund (CEPF), Rainforest Trust, Cleveland Metroparks Zoo, and Palmyre Zoo. We thank Dr Richard Bergl of North Carolina Zoo for technical assistance for SMART implementation. WCS is also grateful for the long-term collaboration and support of the Conservation Association of the Mbe Mountains (CAMM). WCS acknowledges the key role played by the Ministry of Climate Change and Forestry and the Cross River State Forestry Commission who is the legal custodian of all forests and wildlife in Cross River State.
### Appendix I. Patrol effort statistics from July to September 2019.

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<th>Number of hours</th>
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Appendix II. Encounter rate of wildlife species observed during patrols from July to September 2019. (NOTE: Species not encountered during patrols not shown).

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<th>Species common name</th>
<th>Scientific name</th>
<th># of observations</th>
<th>Encounter rate/km</th>
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<td>Brush-tailed porcupine</td>
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<td><em>Crossarchus sp</em></td>
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<tr>
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<td>White-crested hornbill</td>
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<td>Mona monkey</td>
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## Appendix III. Ranger work time from July to September 2019.

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