**Supplementary Material**

Assessing the Status of the Critically Endangered White-bellied Heron *Ardea insignis* in north-east India

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Figure S1. Images showing A) rocky substrate; B) sandy/rocky substrate; C) sandy substrate; D) garbage; E) gravel mining; F) sand mining; G) traditional fishing; H) fish in a cast net.

Figure S2. Images showing: A, G) Greater Flamingo; B, H) White-throated Kingfisher; C, I) Lesser Whistling Duck; D, J) Purple Heron; E, F, K, L) White-bellied Heron, used for key informant questionnaire surveys.

Table S1. The 81 sites surveyed in Arunachal Pradesh and Assam along with GPS locations, distance sampled, mean elevations, and minutes taken to sample.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Site Name | Drainage | GPS Location | Length Sampled (km) | Elevation (m ASL) | Sampling Period (mins) |
| DHIBRU | Pakke | 26.9876° N, 93.0239° E | 1.1 | 149.38 | 148 |
| DIBA | Dibang | 28.782766° N, 95.907933° E | 1.6 | 1215.9 | 240 |
| DIBB | Dibang | 28.877482° N, 95.844455° E | 0.3 | 1305.32 | 80 |
| DIBC | Dibang | 28.808164° N, 95.930943° E | 0.5 | 1275.47 | 75 |
| DIBD | Dibang | 28.835218° N, 95.955706° E | 0.3 | 1354.53 | 40 |
| DIBE | Dibang | 28.825733° N, 95.948958° E | 0.8 | 1324.84 | 100 |
| DIBF | Dibang | 28.939336° N, 95.970665° E | 0.8 | 1697.97 | 60 |
| DIBG | Dibang | 28.179288° N, 95.837575° E | 2 | 439.39 | 120 |
| DIBH | Dibang | 28.163123° N, 95.835965° E | 2 | 394.2 | 95 |
| EKA | East Kameng | 27.396686° N, 93.057775° E | 1 | 415.49 | 100 |
| EKB | East Kameng | 27.27015° N, 92.886434° E | 1.4 | 341.81 | 140 |
| EKC | East Kameng | 27.291545° N, 92.934737° E | 1.5 | 353.84 | 90 |
| EKD | East Kameng | 27.272093° N, 93.064606° E | 1.6 | 700.24 | 85 |
| KAMA | Kamlang | 27.7633° N, 96.3527° E | 2 | 355.4 | 216 |
| KAMB | Kamlang | 27.7786° N, 96.3347° E | 2 | 326.8 | 186 |
| KAMC | Kamlang | 27.7972° N, 96.3221° E | 2 | 291.9 | 140 |
| KAMD | Kamlang | 27.734165° N, 96.40547° E | 0.7 | 460.17 | 68 |
| KAME | Kamlang | 27.738787° N, 96.39087° E | 0.4 | 476.55 | 35 |
| KHA | Pakke | 26.9848° N, 92.9154° E | 0.7 | 127.39 | 47 |
| KHB | Pakke | 26.9803° N, 92.9144° E | 0.7 | 125.66 | 35 |
| LAL | Pakke | 26.9834° N, 92.9215° E | 0.7 | 128.45 | 50 |
| LALEV | Pakke | 26.9854° N, 92.9346° E | 2 | 138.33 | 95 |
| LOA | Lohit | 28.076392° N, 96.521668° E | 0.8 | 491.16 | 69 |
| LOB | Lohit | 28.057621° N, 96.480678° E | 1 | 488.39 | 67 |
| LOC | Lohit | 27.881632° N, 96.844573° E | 1.6 | 829.52 | 175 |
| LOD | Lohit | 27.891633° N, 96.830369° E | 0.5 | 803.33 | 48 |
| LOE | Lohit | 28.123807° N, 97.0179° E | 2 | 1105.52 | 195 |
| LOF | Lohit | 28.137845° N, 97.024725° E | 1.1 | 1118.82 | 155 |
| LOG | Lohit | 27.903798° N, 96.164294° E | 2 | 179.91 | 155 |
| LOH | Lohit | 27.899659° N, 96.266729° E | 2 | 235.25 | 105 |
| LOI | Lohit | 27.894621° N, 96.28482° E | 0.9 | 244.83 | 35 |
| LSA | Subansari | 27.3336° N, 93.9804° E | 0.3 | 146 | 210 |
| LSB | Subansari | 27.344° N, 93.986° E | 0.4 | 136.65 | 40 |
| LSC | Subansari | 27.5151° N, 93.8385° E | 0.7 | 1518.3 | 60 |
| LSD | Subansari | 27.5294° N, 93.8398° E | 1.2 | 1523.95 | 85 |
| MA | Manas | 26.771027° N, 90.954745° E | 2 | 82.24 | 105 |
| MB | Manas | 26.701271° N, 90.97737° E | 2 | 62.15 | 125 |
| MC | Manas | 26.71882° N, 90.97755° E | 1 | 64.87 | 45 |
| NAMA | Namdapha | 27.5169° N, 96.511° E | 2 | 465.05 | 245 |
| NAMB | Namdapha | 27.5285° N, 96.5232° E | 0.6 | 480.7 | 69 |
| NAMC | Namdapha | 27.4995° N, 96.505° E | 2 | 432.76 | 207 |
| NAMD | Namdapha | 27.4834° N, 96.481° E | 2 | 386.21 | 150 |
| NAME | Namdapha | 27.4878° N, 96.4633° E | 2 | 376.31 | 81 |
| NAMF | Namdapha | 27.5105° N, 96.3908° E | 2 | 340.82 | 140 |
| NAMG | Namdapha | 27.5317° N, 96.3899° E | 2 | 380.69 | 125 |
| PAKKE | Pakke | 26.9624° N, 93.0056° E | 2 | 142 | 243 |
| PKA | Pakke | 27.006239° N, 93.033295° E | 2 | 161.58 | 145 |
| PKB | Pakke | 27.019754° N, 93.040094° E | 0.6 | 178.24 | 75 |
| PKC | Pakke | 27.053676° N, 92.773027° E | 2 | 133.69 | 120 |
| SIA | Siang | 28.0978° N, 95.3086° E | 2 | 137.62 | 130 |
| SIB | Siang | 28.0048° N, 95.4613° E | 2 | 117.18 | 135 |
| SIC | Siang | 28.0175° N, 95.4446° E | 1.4 | 121.52 | 80 |
| SID | Siang | 28.0242° N, 95.4386° E | 2 | 124.95 | 105 |
| SIE | Siang | 28.631561° N, 95.01649° E | 1.2 | 271.9 | 60 |
| SIF | Siang | 28.585945° N, 95.066798° E | 0.8 | 269.94 | 35 |
| SIG | Siang | 28.739896° N, 94.921701° E | 0.6 | 308.68 | 55 |
| SIH | Siang | 28.674385° N, 94.974847° E | 1 | 289.47 | 95 |
| SII | Siang | 28.658387° N, 95.007282° E | 0.3 | 286.85 | 40 |
| SIJ | Siang | 28.404464° N, 95.076112° E | 0.5 | 222.75 | 45 |
| SIK | Siang | 28.325099° N, 94.9602° E | 1 | 198.1 | 120 |
| TOWAM | Kamlang | 27.7462° N, 96.3736° E | 1.6 | 391.14 | 125 |
| UPDEK | Pakke | 27.0167° N, 92.8572° E | 2 | 145.85 | 125 |
| WKA | West Kameng | 27.1147° N, 92.1185° E | 1.3 | 1153.99 | 155 |
| WKB | West Kameng | 27.0796° N, 92.1173° E | 0.3 | 944.19 | 45 |
| WKC | West Kameng | 27.0844° N, 92.1084° E | 0.4 | 993.38 | 72 |
| WKD | West Kameng | 27.1148° N, 92.2491° E | 2 | 2001.66 | 190 |
| WKE | West Kameng | 27.1171° N, 92.2713° E | 1.5 | 1998.21 | 180 |
| WKF | West Kameng | 27.1384° N, 92.2672° E | 1.7 | 1951.32 | 175 |
| WKG | West Kameng | 27.3721° N, 92.2404° E | 1.2 | 1575.42 | 100 |
| WKH | West Kameng | 27.397° N, 92.2751° E | 1.5 | 1555.29 | 105 |
| WKI | West Kameng | 27.1987° N, 92.3991° E | 0.3 | 1493.5 | 40 |
| WKJ | West Kameng | 27.2073° N, 92.398° E | 1.5 | 1460.36 | 120 |
| WKK | West Kameng | 27.2137° N, 92.4939° E | 1.7 | 1251.69 | 120 |
| WKL | West Kameng | 27.2023° N, 92.489° E | 0.7 | 1275.93 | 60 |
| WSB | Siang | 28.598282° N, 94.147095° E | 0.8 | 1915.56 | 65 |
| WSC | Siang | 28.586572° N, 94.153988° E | 1.3 | 1911.6 | 70 |
| WSD | Siang | 28.191672° N, 94.819948° E | 0.6 | 237.67 | 40 |
| WSE | Siang | 28.186371° N, 94.775472° E | 0.3 | 228.78 | 30 |
| WSF | Siang | 28.212013° N, 94.828727° E | 0.3 | 248.05 | 25 |
| WSG | Siang | 27.673844° N, 94.717628° E | 1.5 | 126.2 | 95 |
| WSH | Siang | 27.659204° N, 94.686164° E | 1.2 | 126.66 | 85 |

Table S2. Results of the Wilcoxon Rank Sum tests.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Pairwise Wilcoxon Rank Sum Test | | | Kruskal-Wallis Testa |
| NAM-NPA | NAM-PA | NPA-PA |
| **Elevationb** | 0.83 | **0.035** | **0.0001** | **χ² = 18.183, P = <0.001** |
| Width | 0.66 | 0.95 | 0.66 | χ² = 1.138, P = 0.566 |
| Sandy | 0.65 | 0.65 | 0.71 | χ² = 0.877, P = 0.645 |
| Sandy-Rocky | 0.77 | 0.20 | 0.11 | χ² = 4.867, P = 0.088 |
| Rocky | 0.86 | 0.86 | 0.94 | χ² = 0.409, P = 0.815 |
| Slow Flow | 0.46 | 0.46 | 0.44 | χ² = 2.006, P = 0.367 |
| Medium Flow | 0.64 | 0.64 | 0.64 | χ² = 0.448, P = 0.800 |
| Fast Flow | 0.56 | 0.56 | 0.56 | χ² = 0.880, P = 0.644 |
| **Miningc** | **0.022** | 0.389 | **0.019** | **χ² = 12.192, P = 0.002** |
| **Garbagec** | **0.0015** | 0.1868 | **0.0007** | **χ² = 21.697, P = <0.001** |
|  |  |  |  |  |
| aSignificant differences between NAM, PA, and NPA are in bold. | | | | |
| bPairwise Wilcoxon Rank Sum Test is significant between PA and NPA and PA and NAM. | | | | |
| cPairwise Wilcoxon Rank Sum Test is significant between both NAM and NPA and PA and NPA. | | | | |

Table S3. The groups of localities with the names of places included in the grouping and the total number of key informant interviews conducted. The localities were grouped by a combination of common drainage and geographic proximity. NPA – non-protected area; PA – Protected Area

|  |  |  |
| --- | --- | --- |
| **Locality Name** | **Total Number of Interviews** | **Places Included in Grouping** |
| Along | 12 | Along, Basar, Kabu |
| Anini | 5 | Anini |
| Bana | 5 | Bana, Papu Valley |
| Boleng | 5 | Boleng, Komkar |
| Chingwinti | 5 | Chingwinti |
| D'Ering WLS | 12 | Borguli, Namsing |
| Hyalauing | 5 | Hyalauing |
| Kalaktang | 5 | Kalaktang |
| Kameng | 12 | Dirang, Eaglenest WLS, Rupa, Shergaon |
| Kamlang TR | 9 | Wakro |
| Kimmin | 3 | Kimmin |
| Likhabali | 6 | Kane WLS, Likhabali |
| Mechuka | 7 | Mechuka |
| Namdapha | 6 | Deban, Tinsukia |
| Pakke\_NPA | 8 | A2, Seijosa |
| Pakke\_PA | 7 | Khari, Upper Dekhrai |
| Pasighat | 7 | Pasighat |
| Roing | 10 | Roing |
| Siang | 17 | Bomdo, Moying, Ramsing, Yingkiong |
| Tezu | 17 | Demwe, Tezu |
| Tuting | 8 | Tuting |
| Walong | 19 | Kahoo, Kibithu, Moshai, Walong |
| Ziro | 10 | Ziro |

Figure S1. Images showing A) rocky substrate; B) sandy/rocky substrate; C) sandy substrate; D) garbage; E) gravel mining; F) sand mining; G) traditional fishing; H) fish in a cast net. All pictures taken by Rohan Menzies and Megha Rao.



Figure S2. Images showing: A, G) Greater Flamingo; B, H) White-throated Kingfisher; C, I) Lesser Whistling Duck; D, J) Purple Heron; E, F, K, L) White-bellied Heron, used for key informant questionnaire surveys.



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