

Supplementary information

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Table S1. Data of 29 Red Kited tracked by GPS/satellite telemetry and captured in different Spanish provinces. The resident or short-distance migratory behavior is indicated (in this case the distance to the wintering area appears in parentheses).

| Bird ID | Province | Tagging date | Sex | Behaviour |
|------------|------------|-----------------------|--------|-------------------------------------|
| KISP02 | Soria | 31/05/2016 | Female | Short-distance migrant (344 km) |
| REKI02-Cac | Cáceres | 23/05/2014 | Female | Resident |
| REKI02-Zar | Zaragoza | 01/06/2016 | Female | Resident with postbreeding movement |
| REKI05 | Madrid | 30/05/2014 | Male | Resident |
| REKI06 | Madrid | 02/06/2014 | Female | Resident |
| REKI14 | Cáceres | 02/06/2017 | Female | Resident with postbreeding movement |
| REKI15 | Ávila | 21/06/2015 | Female | Resident |
| REKI16 | Segovia | 23/05/2015 | Female | Resident |
| REKI17 | Guipúzcoa | 26/05/2015 | Male | Resident |
| REKI18 | Soria | 01/06/2015 | Female | Short-distance migrant (299 km) |
| REKI19 | Zaragoza | 28/05/2015 | Female | Resident with postbreeding movement |
| REKI20 | Ávila | 21/06/2015 | Female | Resident |
| REKI21 | Segovia | 23/05/2015 | Female | Resident |
| REKI22 | Soria | 01/06/2015 | Female | Short-distance migrant (560 km) |
| REKI23 | Soria | 03/06/2015 | Male | Resident |
| REKI25 | Ávila | 21/06/2015 | Male | Resident |
| REKI26 | Guipúzcoa | 26/05/2015 | Female | Resident |
| REKI26 | Toledo | 19/05/2016 | Female | Short-distance migrant (303 km) |
| REKI28 | Valladolid | 12/06/2015 | Female | Resident with postbreeding movement |
| REKI29 | Huesca | 22/06/2015 | Male | Resident |
| REKI30 | Zamora | 27/06/2015 | Female | Resident with postbreeding movement |
| REKI34 | Burgos | 27/05/2016 | Female | Resident |
| REKI35 | Palencia | 27/06/2016 | Female | Resident with postbreeding movement |
| REKI36 | León | 17/05/2017 | Female | Resident with postbreeding movement |
| REKI37 | Salamanca | 18/05/2017 | Female | Resident |
| REKI38 | Salamanca | 18/05/2017 | Female | Resident |
| 123737 | Madrid | 09/05/2013 | Female | Resident |
| 123741 | Toledo | 12/06/2017 | Male | Resident with postbreeding movement |
| 87911 | Baleares | 02/06/2009 (as chick) | Female | Resident |

Table S2. Home range size of 47 breeding events and maximum distances to nest for individuals of Red Kite tracked by GPS/satellite telemetry in Spain. Values are shown as mean \pm standard deviation. F = Female; M = Male. MCP = Minimum Convex Polygon; K95% = 95% Kernel Density Estimation; K75% = 75% Kernel Density Estimation; K50% = 50% Kernel Density Estimation.

| Bird ID | Sex | Period | Number of locations | MCP (km ²) | K95% (km ²) | K75% (km ²) | K50% (km ²) | Mean distance to nest (km) | Hourly distance covered (km per h) | Maximum distance to nest (km) |
|------------|-----|-----------------------|---------------------|------------------------|-------------------------|-------------------------|-------------------------|----------------------------|------------------------------------|-------------------------------|
| KISP02 | F | 01/03/2017–30/06/2017 | 1070 | 40.259 | 1.653 | 0.751 | 0.431 | 1.14 \pm 1.78 | 0.85 \pm 1.47 | 6.14 |
| KISP02 | F | 01/03/2018–30/06/2018 | 855 | 110.651 | 1.032 | 0.499 | 0.263 | 0.68 \pm 1.09 | 0.46 \pm 0.69 | 12.98 |
| REKI02-Cac | F | 01/03/2015–30/06/2015 | 1715 | 85.392 | 2.647 | 0.924 | 0.529 | 1.75 \pm 2.78 | 0.86 \pm 1.81 | 10.25 |
| REKI02-Zar | F | 01/03/2017–30/06/2017 | 1330 | 616.65 | 2.551 | 1.138 | 0.632 | 0.94 \pm 3.08 | 0.83 \pm 1.65 | 28.96 |
| REKI02-Zar | F | 01/03/2018–30/06/2018 | 1440 | 832.711 | 17.938 | 10.466 | 5.951 | 3.96 \pm 9.58 | 0.67 \pm 1.91 | 41.14 |
| REKI05 | M | 01/03/2015–30/06/2015 | 1383 | 60.927 | 1.091 | 0.558 | 0.308 | 1.14 \pm 1.39 | 1.63 \pm 1.74 | 6.65 |
| REKI06 | F | 01/03/2015–30/06/2015 | 1528 | 91.606 | 0.476 | 0.257 | 0.144 | 0.58 \pm 1.22 | 0.48 \pm 1.21 | 9.09 |
| REKI06 | F | 01/03/2016–30/06/2016 | 1135 | 24.864 | 0.316 | 0.153 | 0.085 | 0.36 \pm 0.80 | 0.62 \pm 1.18 | 5.11 |
| REKI06 | F | 01/03/2017–30/06/2017 | 1335 | 29.018 | 0.236 | 0.099 | 0.051 | 0.25 \pm 0.63 | 0.40 \pm 0.85 | 6.3 |
| REKI06 | F | 01/03/2018–30/06/2018 | 877 | 23.562 | 0.137 | 0.056 | 0.03 | 0.15 \pm 0.42 | 0.28 \pm 0.63 | 5.8 |
| REKI14 | F | 01/03/2018–30/06/2018 | 1695 | 53.68 | 0.328 | 0.176 | 0.097 | 0.72 \pm 0.68 | 0.66 \pm 0.96 | 6.74 |
| REKI15 | F | 01/03/2016–30/06/2016 | 1711 | 146.964 | 0.613 | 0.342 | 0.191 | 0.54 \pm 1.53 | 0.61 \pm 1.32 | 13.33 |
| REKI15 | F | 01/03/2017–30/06/2017 | 1444 | 187.001 | 6.618 | 2.629 | 1.504 | 2.15 \pm 3.89 | 0.80 \pm 1.71 | 15.5 |
| REKI15 | F | 01/03/2018–30/06/2018 | 1384 | 21.527 | 0.055 | 0.024 | 0.01 | 0.69 \pm 0.33 | 0.45 \pm 1.1 | 9.05 |
| REKI16 | F | 01/03/2016–30/06/2016 | 1131 | 11.535 | 0.08 | 0.041 | 0.022 | 0.22 \pm 0.42 | 0.51 \pm 1.09 | 3.34 |
| REKI16 | F | 01/03/2017–30/06/2017 | 1086 | 7.301 | 0.086 | 0.027 | 0.014 | 0.68 \pm 0.25 | 0.35 \pm 0.81 | 2.89 |
| REKI16 | F | 01/03/2018–30/06/2018 | 1187 | 9.013 | 0.134 | 0.071 | 0.039 | 0.88 \pm 0.22 | 0.49 \pm 0.89 | 3.7 |
| REKI17 | M | 01/03/2016–30/06/2016 | 1720 | 98.774 | 2.84 | 0.41 | 0.172 | 1.05 \pm 1.29 | 1.17 \pm 1.32 | 10.96 |
| REKI17 | M | 01/03/2017–30/06/2017 | 1683 | 147.489 | 2.465 | 0.387 | 0.199 | 1.14 \pm 1.42 | 1.48 \pm 1.65 | 13.21 |
| REKI17 | M | 01/03/2018–30/06/2018 | 1720 | 111.72 | 0.838 | 0.285 | 0.153 | 1.10 \pm 1.46 | 1.42 \pm 1.54 | 10.9 |
| REKI18 | F | 01/03/2016–30/06/2016 | 1471 | 313.241 | 13.741 | 4.266 | 2.378 | 1.79 \pm 3.66 | 1.58 \pm 2.29 | 19.9 |
| REKI22 | F | 01/03/2016–30/05/2016 | 1271 | 332.702 | 6.77 | 2.728 | 1.184 | 1.73 \pm 3.45 | 0.82 \pm 1.86 | 19.86 |
| REKI23 | M | 01/03/2016–30/06/2016 | 1718 | 276.931 | 6.497 | 1.248 | 0.384 | 1.52 \pm 1.67 | 1.55 \pm 1.75 | 13.75 |

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|--------|---|-----------------------|------|---------|-------|-------|-------|-------------|-------------|-------|
| REKI23 | M | 01/03/2017–30/06/2017 | 1700 | 298.857 | 7.417 | 1.145 | 0.459 | 1.41 ± 1.81 | 1.53 ± 1.65 | 28.19 |
| REKI23 | M | 01/03/2018–30/06/2018 | 1206 | 90.597 | 2.587 | 0.532 | 0.248 | 1.08 ± 1.19 | 1.28 ± 1.37 | 8.12 |
| REKI25 | M | 01/03/2016–30/06/2016 | 1334 | 143.963 | 4.6 | 0.614 | 0.305 | 1.59 ± 1.58 | 1.52 ± 1.44 | 14.27 |
| REKI25 | M | 01/03/2017–30/06/2017 | 665 | 29.416 | 5.306 | 0.79 | 0.207 | 1.60 ± 1.15 | 1.43 ± 1.02 | 4.98 |
| REKI25 | M | 02/03/2018–30/06/2018 | 1032 | 23.848 | 4.86 | 1.012 | 0.179 | 1.79 ± 1.14 | 1.32 ± 1.08 | 6.41 |
| REKI28 | F | 01/03/2016–30/06/2016 | 1417 | 15.621 | 0.198 | 0.056 | 0.026 | 0.53 ± 0.38 | 0.16 ± 0.45 | 4.94 |
| REKI28 | F | 01/03/2017–08/06/2017 | 875 | 16.656 | 0.082 | 0.041 | 0.021 | 0.15 ± 0.38 | 0.19 ± 0.49 | 3.74 |
| REKI29 | M | 01/03/2016–30/06/2016 | 1676 | 349.579 | 9.315 | 3.219 | 1.575 | 2.38 ± 4.85 | 2.49 ± 3.66 | 25.58 |
| REKI29 | M | 01/03/2017–30/06/2017 | 1640 | 404.808 | 6.578 | 2.306 | 0.95 | 1.29 ± 3.32 | 1.35 ± 2.63 | 27.43 |
| REKI29 | M | 01/03/2018–30/06/2018 | 1239 | 347.684 | 6.662 | 2.604 | 0.88 | 1.48 ± 3.34 | 1.45 ± 2.61 | 28.14 |
| REKI30 | F | 01/03/2016–30/06/2016 | 971 | 27.557 | 0.157 | 0.083 | 0.045 | 0.30 ± 0.61 | 0.29 ± 0.59 | 5.51 |
| REKI30 | F | 01/03/2017–30/06/2017 | 928 | 273.659 | 2.833 | 0.894 | 0.485 | 0.73 ± 1.69 | 0.86 ± 1.70 | 21.47 |
| REKI34 | F | 01/03/2017–30/06/2017 | 1641 | 253.382 | 2.676 | 1.468 | 0.819 | 0.84 ± 2.82 | 0.83 ± 2.10 | 21.91 |
| REKI35 | F | 15/03/2017–30/06/2017 | 877 | 123.837 | 0.97 | 0.557 | 0.314 | 1.19 ± 2.93 | 1.29 ± 2.34 | 9.74 |
| REKI35 | F | 01/03/2018–30/06/2018 | 694 | 604.212 | 8.016 | 4.651 | 2.613 | 1.66 ± 4.69 | 0.95 ± 1.88 | 33.39 |
| REKI36 | F | 01/03/2018–30/06/2018 | 1635 | 17.532 | 0.132 | 0.063 | 0.034 | 0.31 ± 0.61 | 0.42 ± 0.70 | 4.65 |
| REKI37 | F | 01/03/2018–30/06/2018 | 1277 | 505.671 | 8.896 | 5.148 | 2.876 | 0.93 ± 4.88 | 0.35 ± 1.45 | 47.61 |
| 123737 | F | 05/03/2014–30/06/2014 | 261 | 20.389 | 1.119 | 0.428 | 0.243 | 0.74 ± 0.84 | 0.57 ± 0.71 | 4.79 |
| 123737 | F | 02/03/2015–30/06/2015 | 338 | 21.663 | 0.937 | 0.338 | 0.187 | 0.64 ± 0.73 | 0.40 ± 0.42 | 4.54 |
| 123737 | F | 01/03/2016–30/06/2016 | 319 | 49.596 | 2.988 | 0.98 | 0.542 | 1.65 ± 0.94 | 0.64 ± 0.74 | 11.12 |
| 123741 | M | 01/03/2018–30/06/2018 | 822 | 149.497 | 1.602 | 0.673 | 0.377 | 1.26 ± 1.71 | 1.18 ± 1.36 | 12.61 |
| 87911 | F | 01/03/2014–30/06/2014 | 500 | 236.111 | 15.71 | 9.288 | 5.287 | 3.71 ± 5.68 | 3.36 ± 4.90 | 22.47 |
| 87911 | F | 01/03/2015–30/06/2015 | 580 | 275.525 | 7.177 | 4.373 | 2.502 | 1.24 ± 4.08 | 1.04 ± 2.86 | 25.62 |
| 87911 | F | 01/03/2016–30/06/2016 | 393 | 36.79 | 1.691 | 0.984 | 0.563 | 0.50 ± 1.70 | 0.59 ± 1.75 | 9.74 |