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# National forest carbon harvesting and allocation dataset for the period 2003 to 2018

**Daju Wang et al.**

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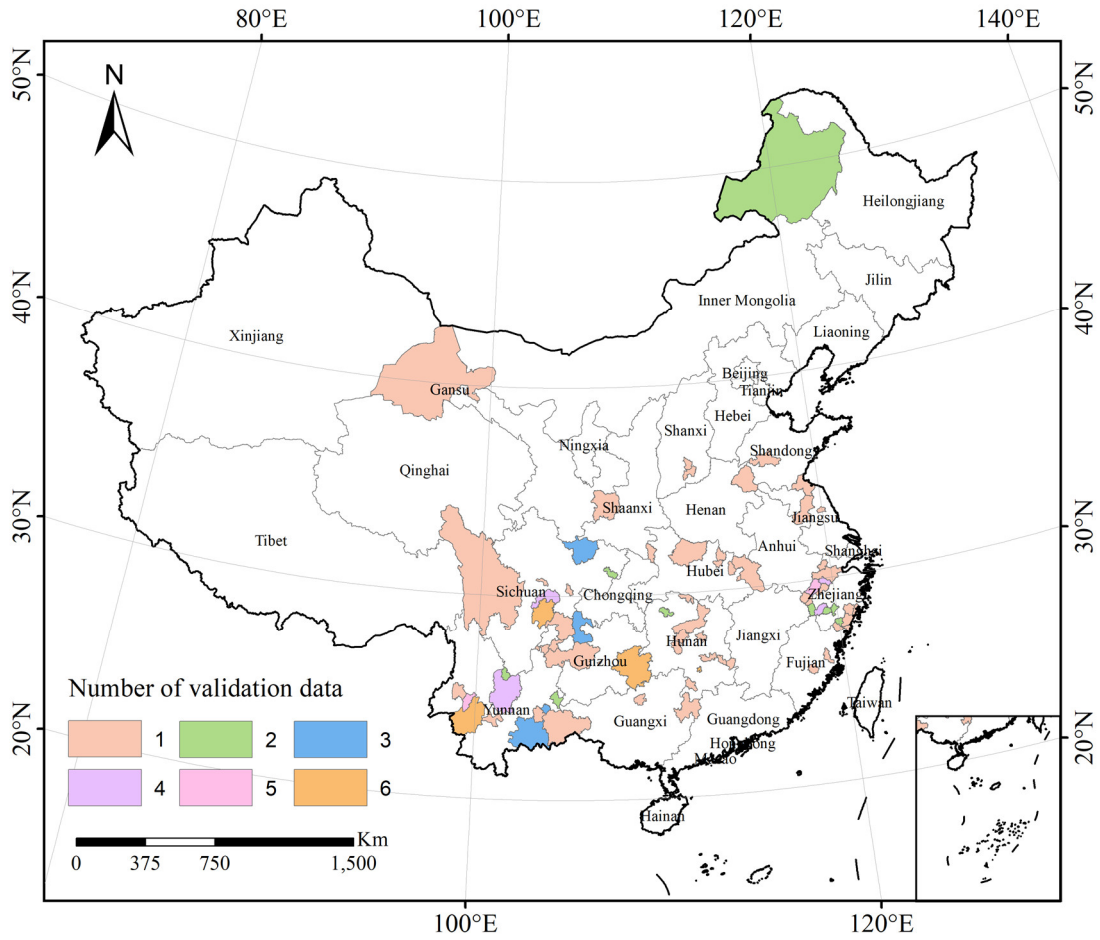
**Supplement:**



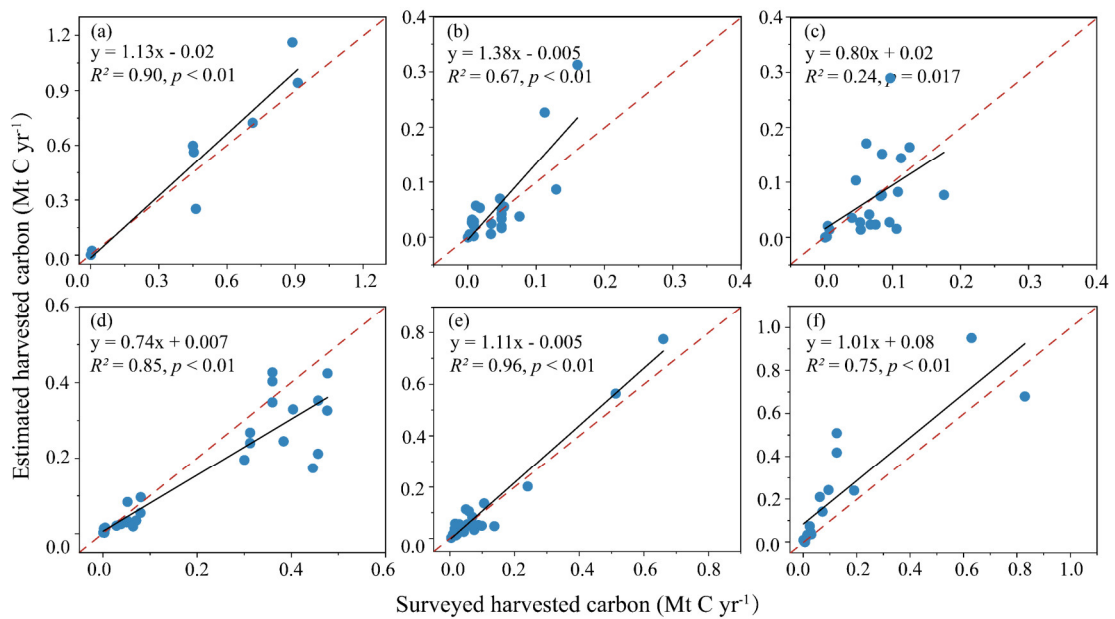**Figure S1:** Distribution of city and county-level surveyed forest harvesting data.



**Figure S2:** Comparison of estimated and surveyed harvested carbon at the city and county levels for

each investigated province, (a) Guizhou, (b) Hubei & Hunan, (c) Sichuan, (d) Yunnan, (e) Zhejiang, and (f) other provinces. The solid line indicates the regression lines and the red dashed line indicates the 1:1 line.
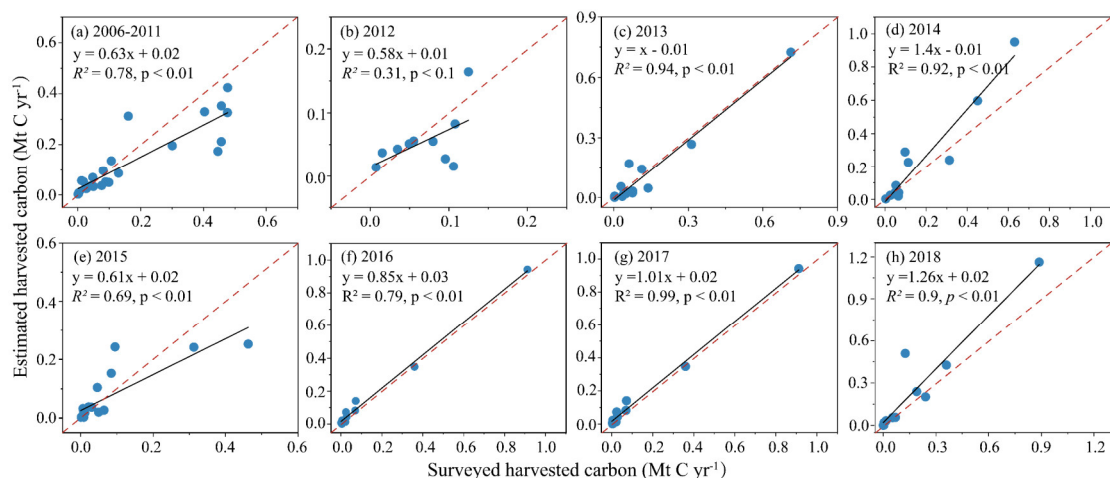


**Figure S3:** Comparison of estimated and surveyed harvested carbon at the city and county levels across each investigated year. The solid line indicates the regression lines and the red dashed line indicates the 1:1 line.
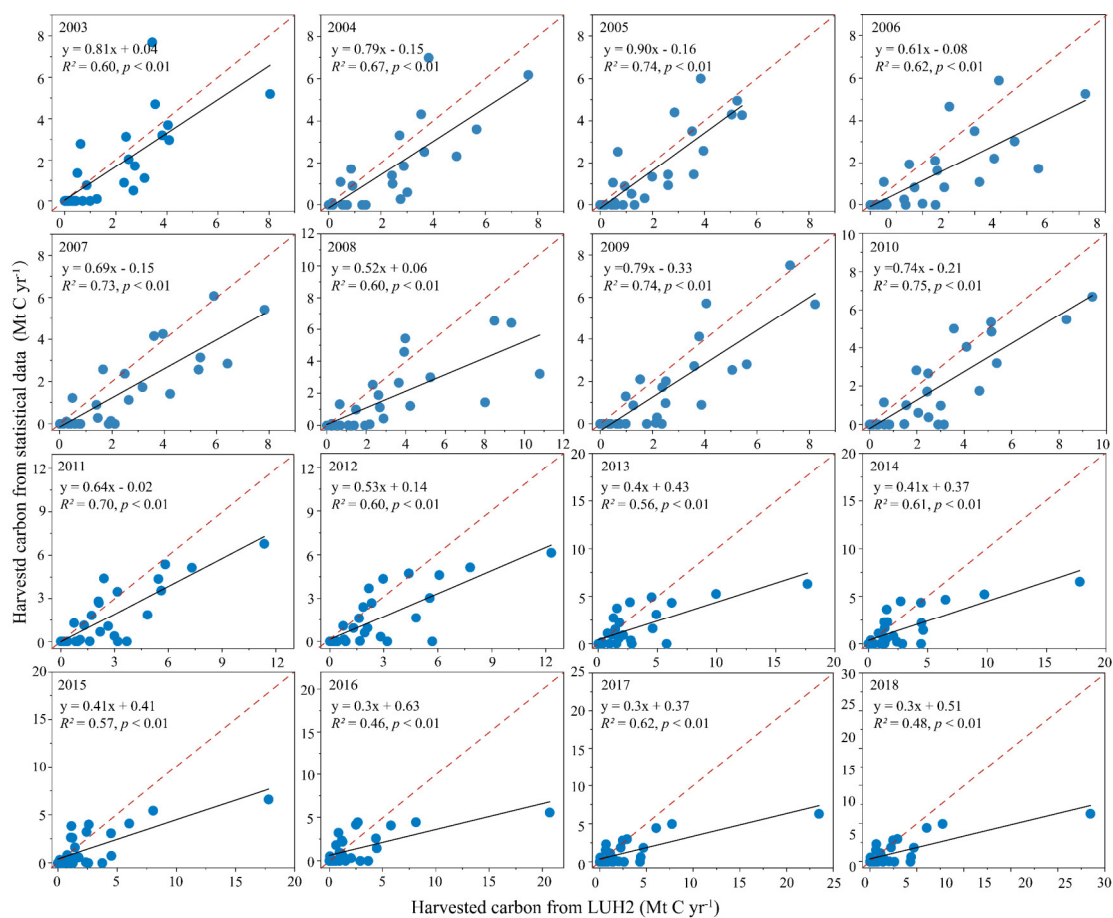


**Figure S4:** Comparisons between harvested carbon from statistical data and the LUH2 data for 2003 to 2018. Each point in each figure represents a province. The solid line indicates the regression lines and the red dashed line indicates the 1:1 line.
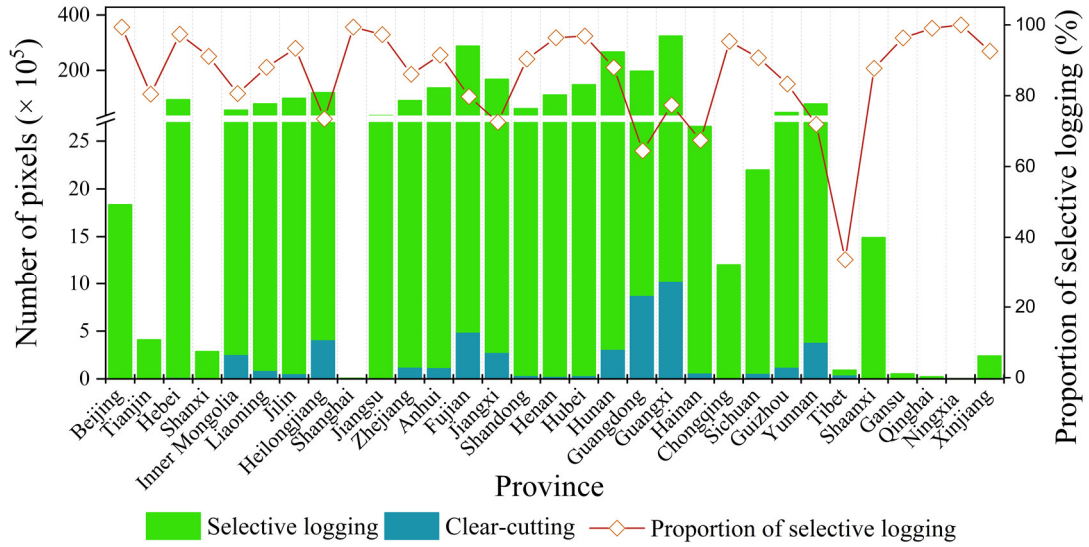
**Figure S5:** The number of pixels where clear-cutting and selective logging occurred and the proportion of harvested carbon from selective logging to the total harvested carbon for each province averaged from 2003 to 2018.



**Figure S6:** Long-term changes of harvested carbon of fuel wood and fuel wood from farmers from 2003 to 2018 over China.

**Figure S7:** Proportion of estimated harvested carbon exceeding AGB across all pixels where harvesting occurred at the province scale.

**Table S1:** Full names and abbreviations of terminologies.
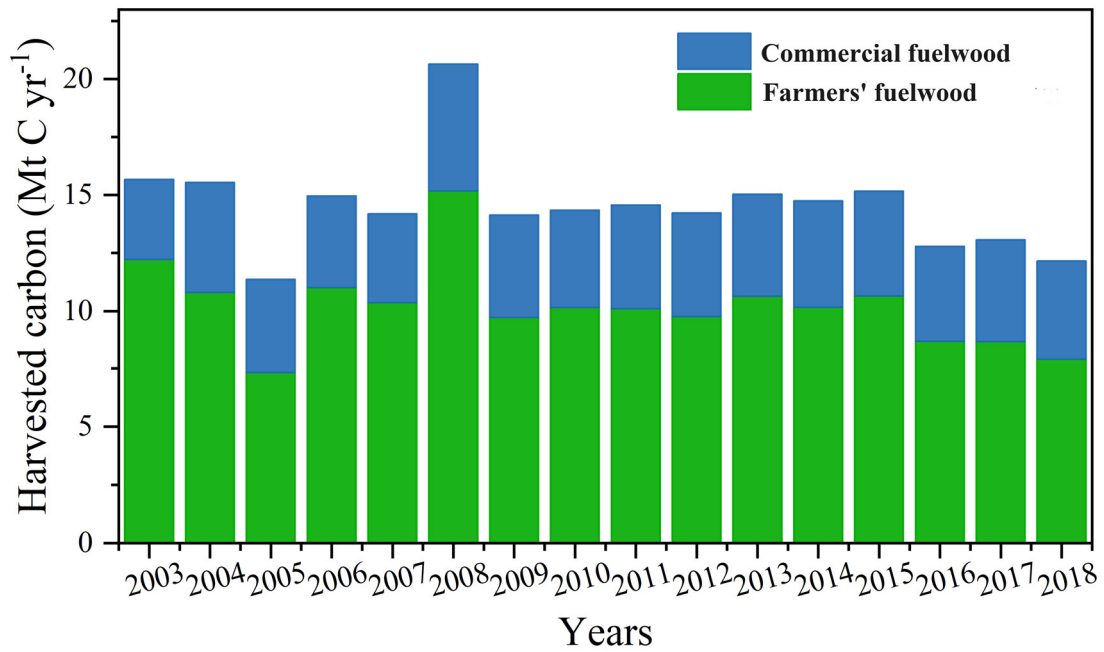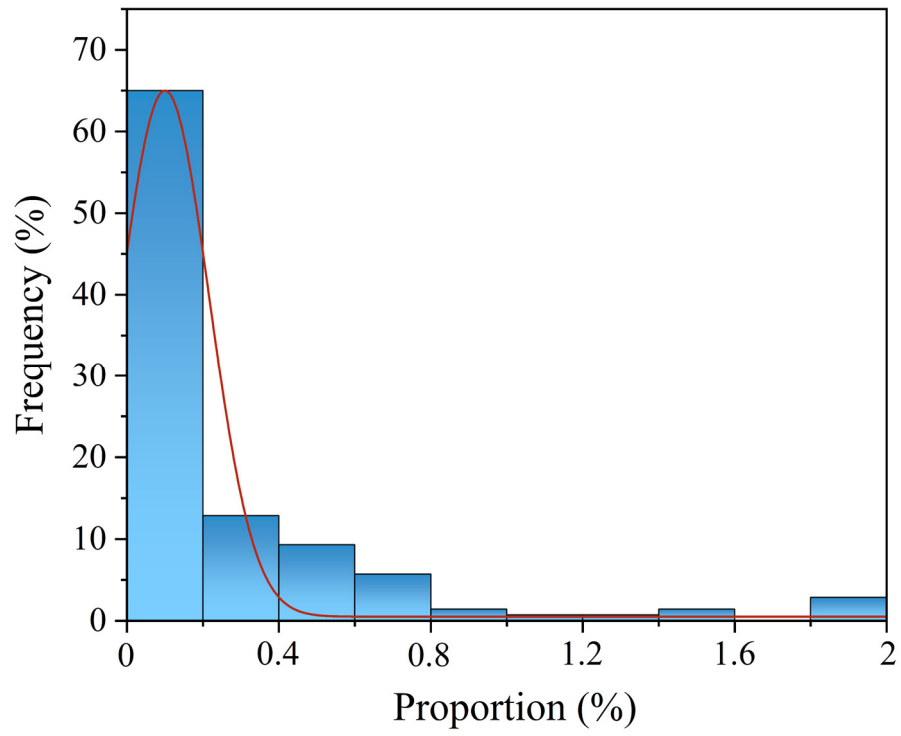
| Full name | Acronyms | Full name | Acronyms |
|---|---|---|---|
| Long-term harvest and Allocation of Forest Biomass | LEAF | Harvested Wood Products | HWPs |
| Land-Use Harmonization 2 | LUH2 | Tree Cover Loss | TCL |
| First-order decay | FOD | Above-ground biomass | AGB |
| National Forest Inventory | NFI | Harvested carbon from clear-cutting | $HC_C$ |
| Normalized Difference Vegetation Index | NDVI | Harvested carbon from selective logging | $HC_S$ |
| Statistical harvested carbon | SHC | Estimated service life | ESL |
| Discarded organic carbon | DOC | Greenhouse gas | GHG |

**Table S2:** Provincial *Coef* and wood output rates (*R*).

| Province | *Coef* | R |
|---|---|---|
| Beijing | 0.62 | 0.55 |
| Tianjin | 0.60 | 0.50 |
| Hebei | 0.52 | 0.51 |
| Shanxi | 0.68 | 0.57 |
| Inner Mongolia | 0.42 | 0.55 |
| Liaoning | 0.40 | 0.70 |
| Jilin | 0.37 | 0.62 |
| Heilongjiang | 0.39 | 0.55 |
| Shanghai | 0.59 | 0.65 |
| Jiangsu | 0.58 | 0.66 |
| Zhejiang | 0.63 | 0.60 |
| Anhui | 0.55 | 0.64 |
| Fujian | 0.46 | 0.69 |
| Jiangxi | 0.55 | 0.62 |
| Shandong | 0.60 | 0.60 |
| Henan | 0.60 | 0.65 |
| Hubei | 0.53 | 0.65 |
| Hunan | 0.52 | 0.64 |
| Guangdong | 0.48 | 0.63 |
| Guangxi | 0.48 | 0.66 |
| Hainan | 0.43 | 0.68 |
| Chongqing | 0.49 | 0.53 |
| Sichuan | 0.30 | 0.50 |
| Guizhou | 0.44 | 0.66 |
| Yunnan | 0.40 | 0.65 |
| Tibet | 0.29 | 0.33 |
| Shaanxi | 0.52 | 0.48 |
| Gansu | 0.47 | 0.50 |
| Qinghai | 0.73 | 0.63 |

| | | |
|---|---|---|
| Ningxia | 0.71 | 0.65 |
| Xinjiang | 0.43 | 0.54 |

**Table S3:** Service life of HWPs categories in-use.

| HWP categories | Service life (year) |
|---|---|
| Paper and paperboard | 3[a] |
| Wood-based panels | 8[a] |
| Furniture | 15[a] |
| Constructions | 40[b] |

[a] Wang et al., 2017; [b] IPCC, 2019b.

**Table S4:** Key parameters of $CH_4$ generation in Chinese landfills.

| Parameters | Value ($\pm$SD) |
|---|---|
| $CH_4$ oxidation factor ($OX_T$) | 0.176 ($\pm$0.06) |
| $CH_4$ correction factor ($f_{ar}$) | 0.28 ($\pm$0.15) |
| $CH_4$ recovery rate ($R_T$) (%) | 12.06 ($\pm$9.95) |
| Volume fraction of $CH_4$ | 0.5 ($\pm$0.1) |

Values were derived from Cai et al. (2018).

**Table S5:** Decay constant ($k$) and the proportion of discarded organic carbon ($DOC_f$) that can be decomposed under anaerobic conditions for various waste types in landfills.

| Type of waste | $k$ | $DOC_f$ |
|---|---|---|
| Paper | 0.05 ($\pm$0.01)[b] | 0.5 ($\pm$0.2)[a] |
| Wood-based panels | 0.03 ($\pm$0.01)[b] | 0.1 ($\pm$0.05)[c] |
| Furniture | 0.028 ($\pm$0.01)[b] | 0.105 ($\pm$0.025)[c] |
| Construction | 0.025 ($\pm$0.01)[b] | 0.105 ($\pm$0.025)[c] |

[a] IPCC, 2019a; [b] Cai et al., 2018; [c] Grann, 2015.

# References

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