Getting through PS6:
Critical Habitat and its requirements
Case studies from Guinea and Mongolia

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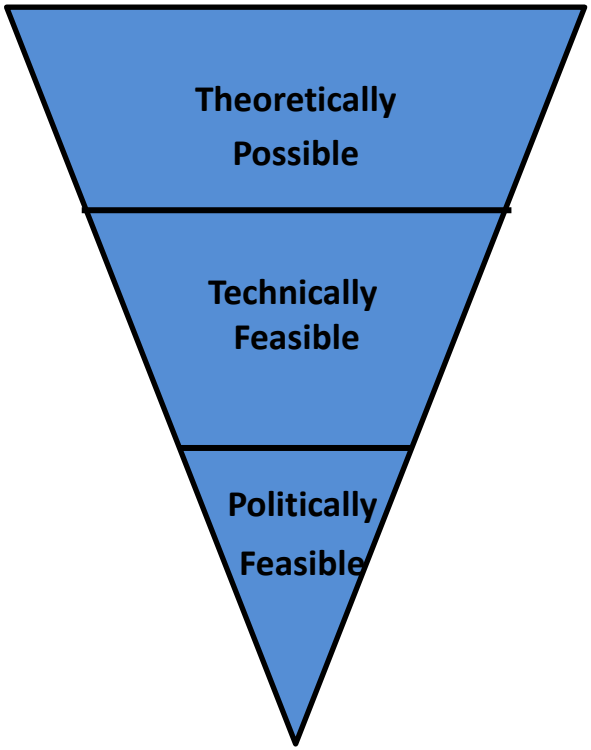
Tools for PS6 2012: Critical Habitat Assessments, NPI forecasting, and offset design

1. Select which types of biodiversity to include
2. Select a metric or metrics
3. Fix a time period e.g. 2012-2030
4. Quantify residual losses
5. Quantify biodiversity gains through offsets
6. Apply the principles of No Net Loss



Critical Habitat Assessment ***NPI Forecasting*** ***Offset Design***

Four steps to Critical Habitat Assessment

1. Define spatial unit of analysis: The "Discrete Management Unit"

Understand the project site within a landscape scale: ecologically – e.g. a watershed; or politically – e.g. a province.

2. Collect and verify baseline data: desktop and field

Biological and social fieldwork, literature review, expert consultation and analysis.

3. Apply Critical Habitat criteria

Screen priority biodiversity components against new PS6 2012 quantitative criteria.

4. Determine Tier 1 or Tier 2 Critical Habitat

Tier 1 is very high significance, and development is unlikely to be offsetable

Critical Habitat Assessment – Steps 1 and 2

1. Define the discrete management unit
2. Collect biological data in the landscape and at the site (desktop, field)

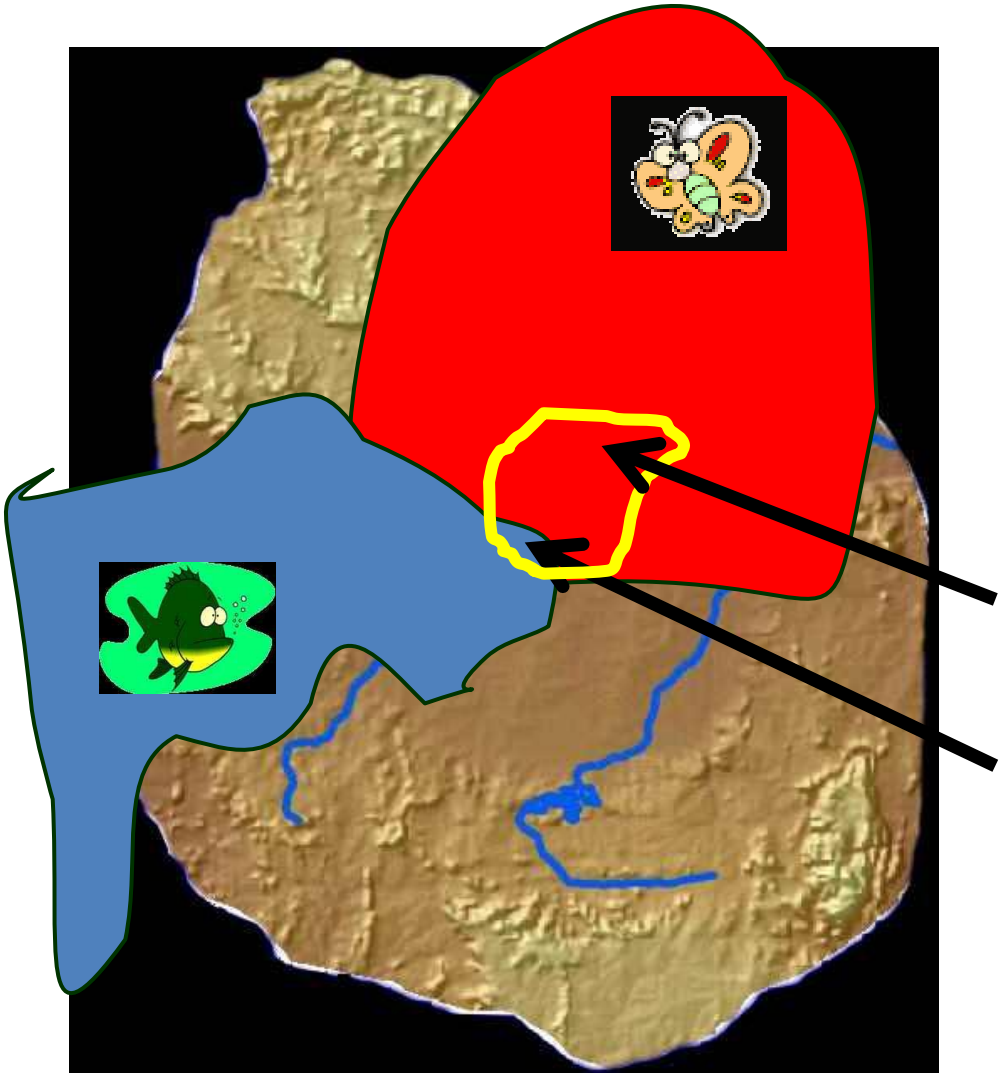
Step 3: Screen biodiversity at the site using Critical Habitat criteria

1. Globally or nationally Critically Endangered or Endangered species;
2. Restricted-range or endemic species;
3. Concentrations of migratory and congregatory species;
4. Highly-threatened and unique ecosystems;
5. Key evolutionary processes.

Critical Habitat is identified irrespective of the type or scale of the development or possible impacts

See: http://www.thebiodiversityconsultancy.com/wp-content/uploads/2012/07/Critical-Habitat-a-concise-summary.pdf

Calculate what proportion (%) of species population exists within the discrete management unit

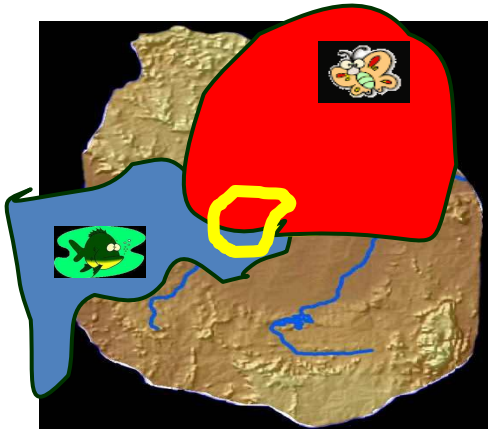


7% of Red species global Range / population

0.6% of Blue species global range or population

Ensure a scientific basis for comparing your DMU with the species "global distribution"

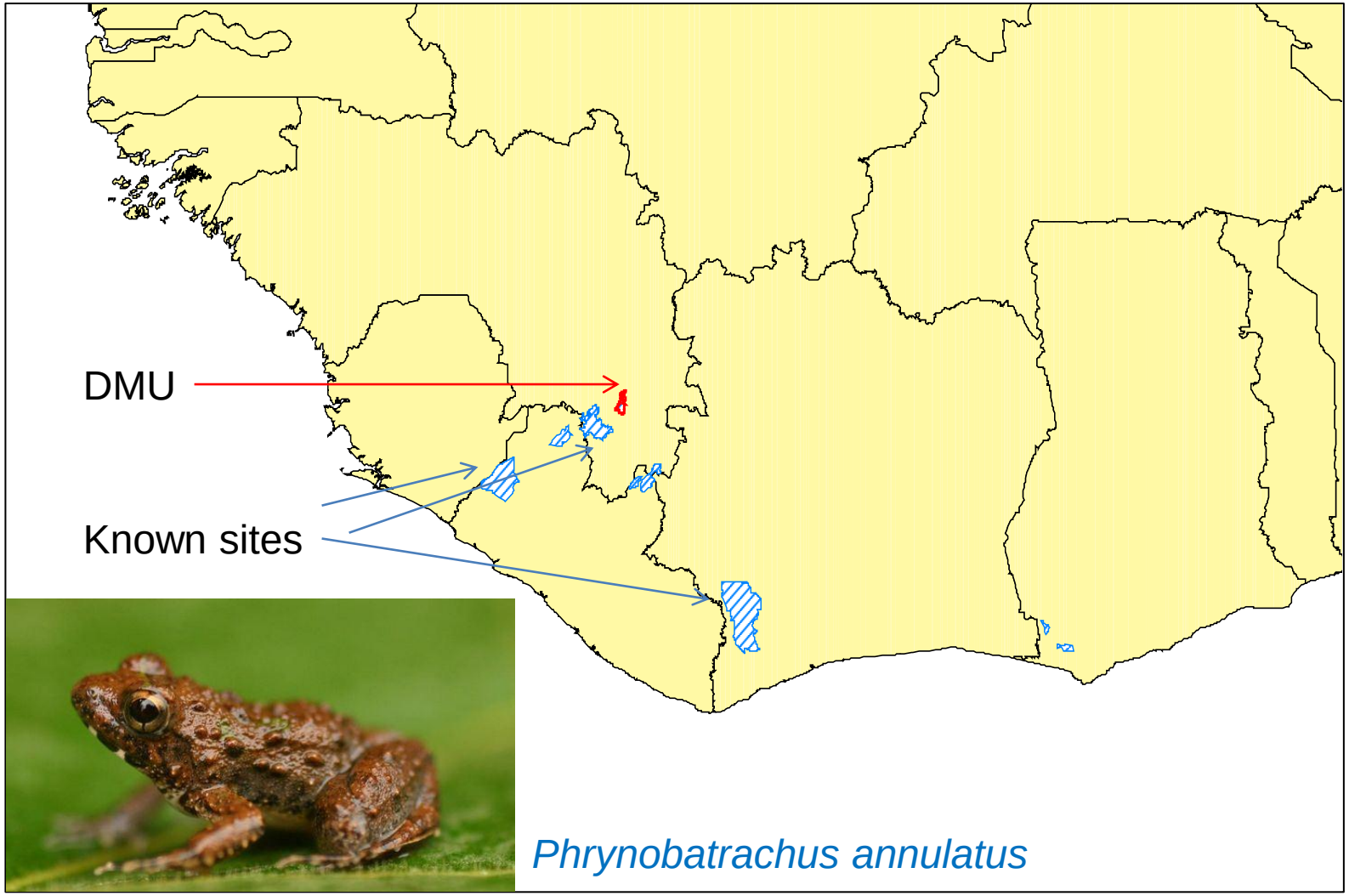
The Red and Blue polygons = global or national range or population of the species.



What data to use to derive species polygons?

- Total Range Size e.g. IUCN Extent of Occurrence
- Total utilised habitat e.g. IUCN Area of Occupancy
- The total surface are of known sites (e.g. frog known from 6 sites globally)
- The published or inferred population size.

Example: Using total area of known sites to compare with DMU for a west african frog



Phrynobatrachus annulatus

Step 4: Tier 1 or Tier 2 Critical Habitat?

- Tier 1 Critical Habitat, highest importance, in which development is very difficult to implement and offsets are generally not possible except in exceptional circumstances

- Tier 2 Critical Habitat, of high importance, in which development may be possible depending on the type of infrastructure and the company's mitigation strategy and internal capacity, and where offsets may be possible under some circumstances.

Criteria	Tier 1	Tier 2
1. Critically Endangered (CR)/ Endangered (EN) Species	(a) Habitat required to sustain ≥ 10 percent of the global population of a CR or EN species/subspecies where there are known, regular occurrences of the species and where that habitat could be considered a discrete management unit for that species. (b) Habitat with known, regular occurrences of CR or EN species where that habitat is one of 10 or fewer discrete management sites globally for that species.	(c) Habitat that supports the regular occurrence of a single individual of a CR species and/or habitat containing regionally-important concentrations of a Red-listed EN species where that habitat could be considered a discrete management unit for that species/subspecies. (d) Habitat of significant importance to CR or EN species that are wide-ranging and/or whose population distribution is not well understood and where the loss of such a habitat could potentially impact the long-term survivability of the species. (e) As appropriate, habitat containing nationally/regionally important concentrations of an EN, CR or equivalent national/regional listing.
2. Endemic/ Restricted Range Species	(a) Habitat known to sustain ≥ 95 percent of the global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species (e.g., a single-site endemic).	(b) Habitat known to sustain ≥ 1 percent but < 95 percent of the global population of an endemic or restricted-range species/subspecies where that habitat could be considered a discrete management unit for that species, where data are available and/or based on expert judgement.
3. Migratory/ Congregatory Species	(a) Habitat known to sustain, on a cyclical or otherwise regular basis, ≥ 95 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle where that habitat could be considered a discrete management unit for that species.	(b) Habitat known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent but < 95 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle and where that habitat could be considered a discrete management unit for that species, where data are available and/or based on expert judgement. (c) For birds, habitat that meets BirdLife International's Criterion A4 for congregations and/or Ramsar Criteria 5 or 6 for Identifying Wetlands of International Importance. (d) For species with large but clumped distributions, a provisional threshold is set at ≥ 5 percent of the global population for both terrestrial and marine species. (e) Source sites that contribute ≥ 1 percent of the global population of recruits.

Confused? Some rules of thumb for Tier 1 + Tier 2

Tier 2 Critical Habitat:

1. DMUs with ≥1% of the global population of a restricted-range, endemic or migratory/congregatory species (this is the easiest category in which to trigger CH) = Tier 2 (Sub-criteria 2b+3b)
2. DMUs with a single regularly occurring individual of a CR species = Tier 2 (Sub-criterion 1c)
3. DMUs with *regionally important concentrations* of a EN species = Tier 2 (Sub-criterion 1c)

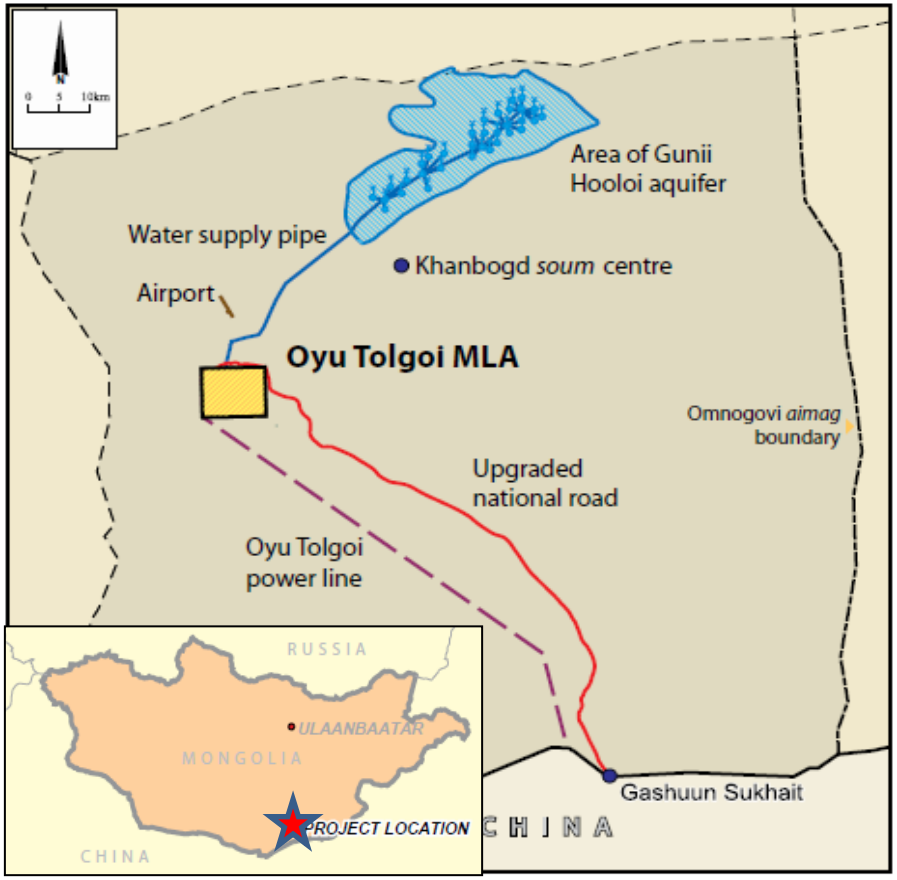
Tier 1 Critical Habitat:

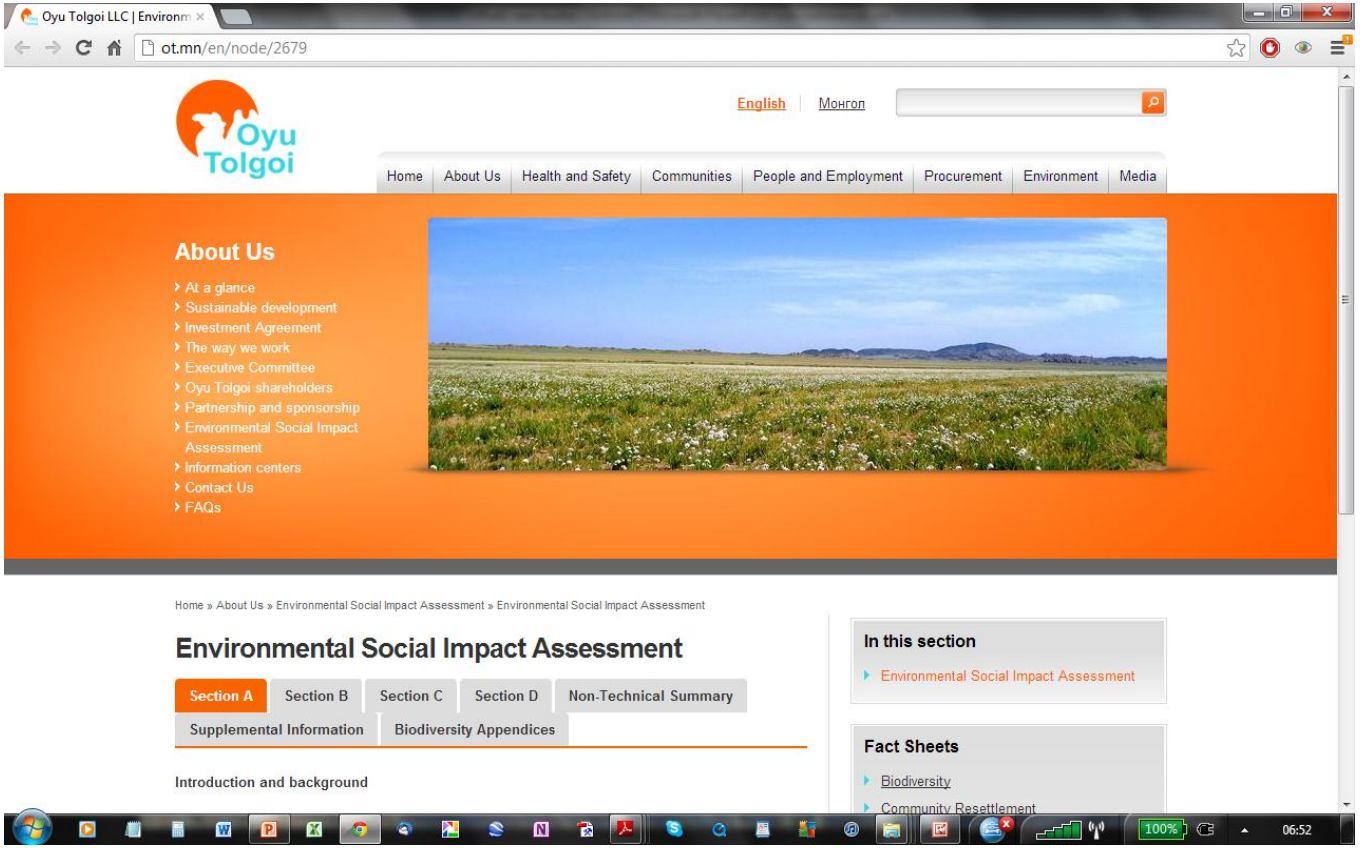
1. DMUs with ≥10% global population of a CR or EN species = Tier 1 (Sub-criteria 1a+1b); (or the equivalent in terms of sites e.g. if the DMU is one of only 10 sites globally)

2. DMUs with ≥95% of the global population of a restricted-range, endemic or migratory/congregatory species (all effectively 'site endemics') = Tier 1 (Sub-criteria 2a+3a)

PS6 Case Study: Oyu Tolgoi LLC, South Gobi, Mongolia

- First project to disclose documents under new 2012 PS6
- Rio Tinto managed copper and gold mine
- Production due in 2013
- Commitment to Net Positive Impact
  - Mitigation
  - offsets





- ESIA http://www.ot.mn/en/about-us/environmental-social-impact-assessment

- The biodiversity documentation on PS6 (Appendices to the ESIA): http://www.ot.mn/en/node/2679

EDC
the biodiversity consultancy

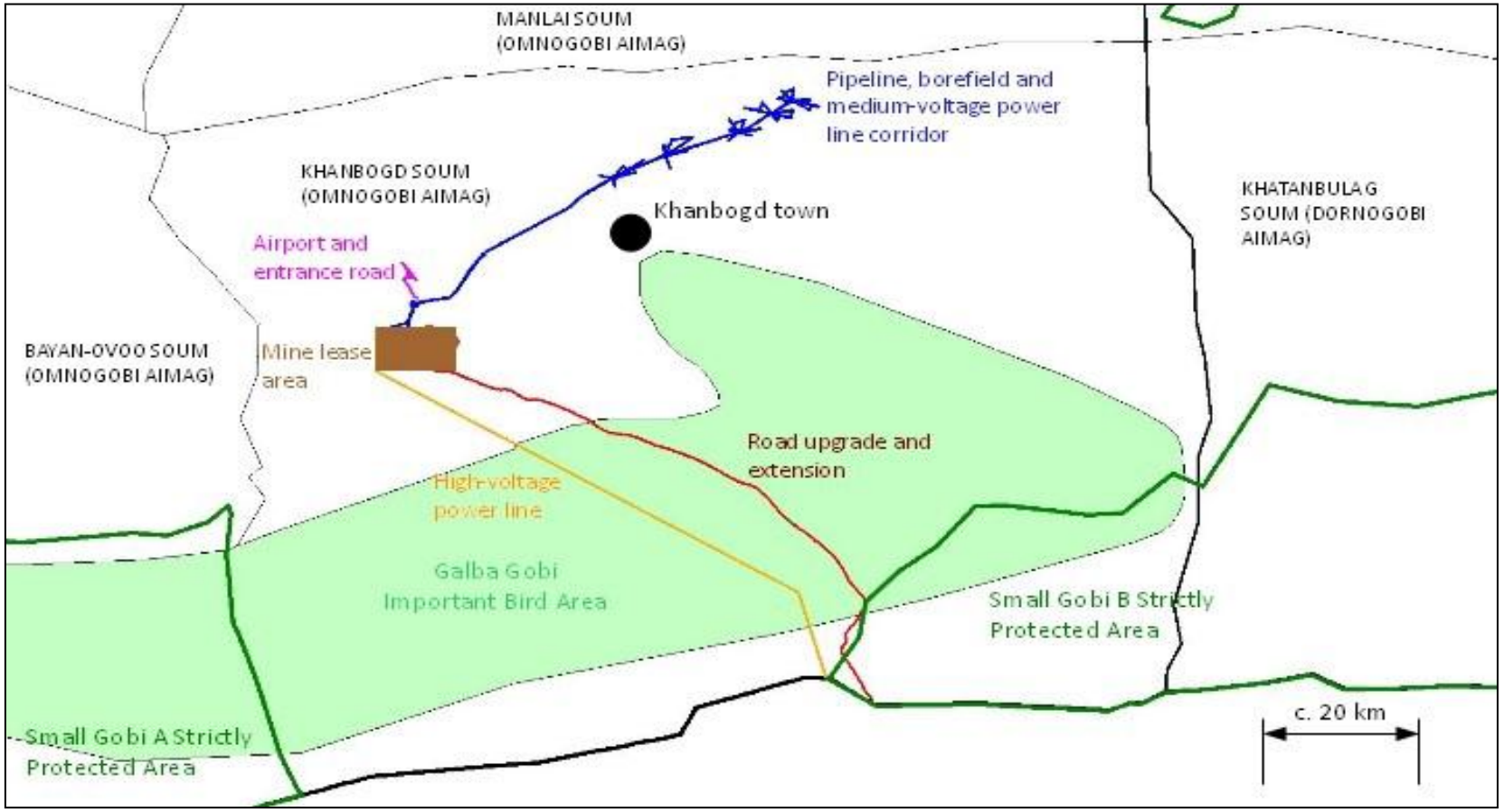
IFC

European Bank
for Reconstruction and Development

Large scale infrastructure within the ranges of IUCN-listed mammals and birds

Infrastructure in a regional context

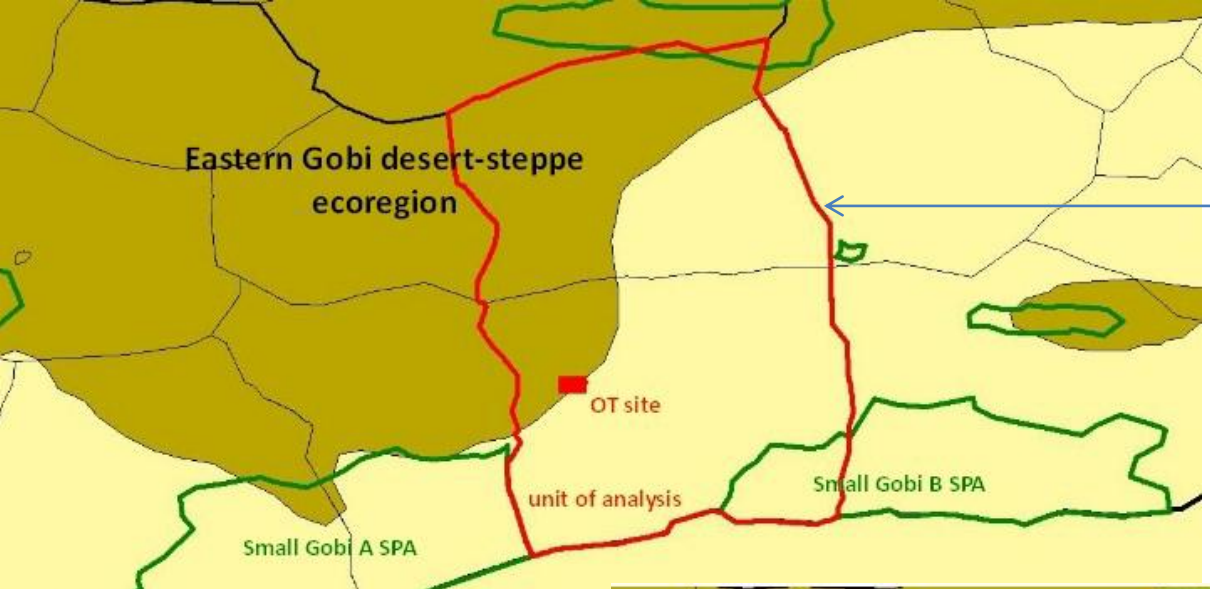
- 85 km^2 mine lease area;
- 200 km road;
- 200km powerline;
- Town expansion; airport



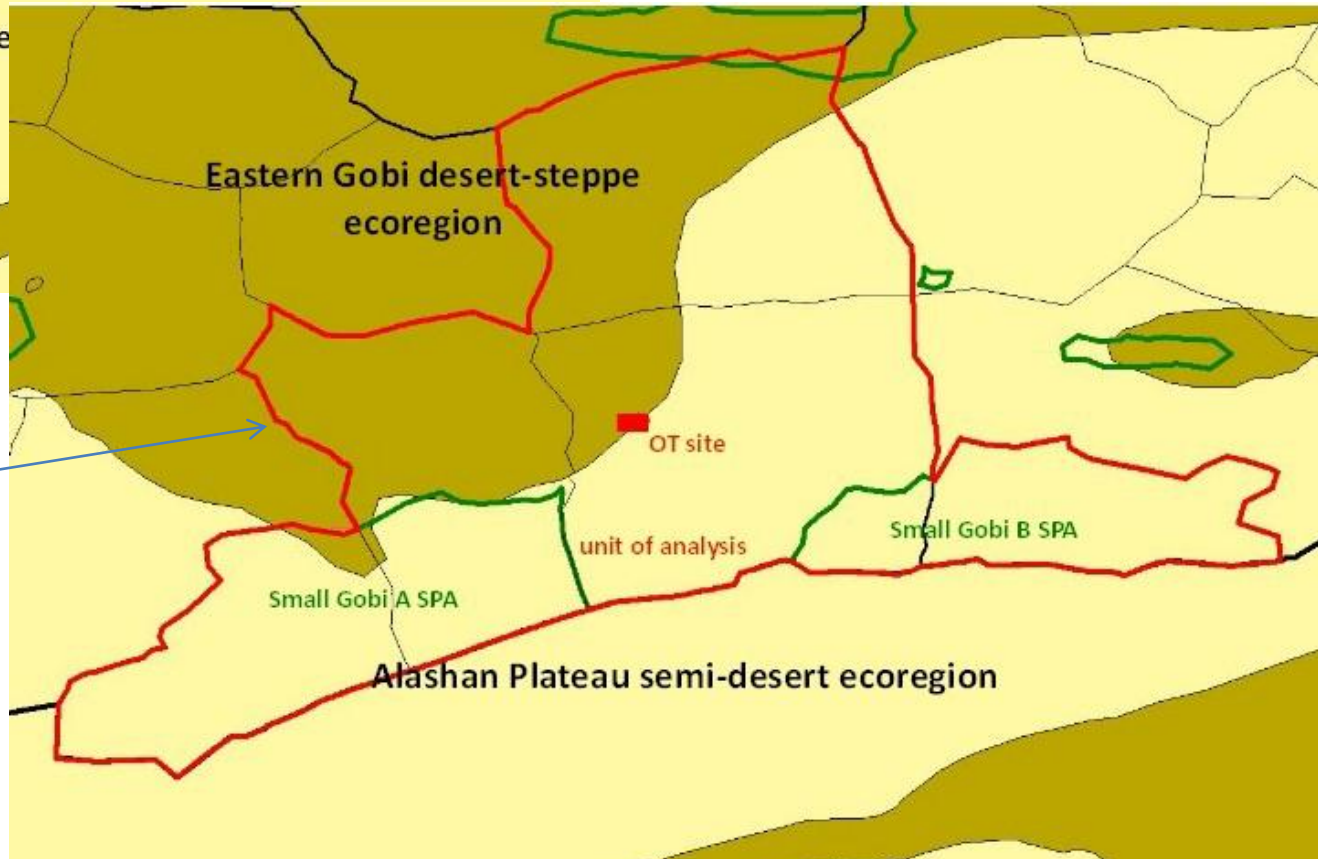
Taxonomic group	Biodiversity feature	Scientific name	Critical Habitat	IUCN Red List status	National Red List status	Status in unit of analysis
Plant (herb)	18 'very rare' plants such as Mongolian Chesney	*Chesneya/Chesniella mongolica*	Tier 2	-	EN?	Patchily distributed throughout – assumed here to represent all 18 'very rare' plants known or predicted from the project area
Mammal (carnivore)	Snow Leopard	*Panthera uncia*	-	EN	EN	Very rare 'resident'
Mammal (ungulate)	Asiatic Wild Ass	*Equus hemionus*	Tier 1	EN	EN	Nomadic 'resident'
Mammal (ungulate)	Argali	*Ovis ammon*	Tier 2	NT	EN	Localised resident
Mammal (ungulate)	Goitered Gazelle	*Gazella subgutturosa*	Tier 2	VU	VU	Migratory 'resident'
Mammal (ungulate)	Mongolian Gazelle	*Procapra gutturosa*	-	LC	EN	Rare visitor from the east
Mammal (rodent)	Long-eared Jerboa	***Euchoreutes naso***	-	LC	VU	Likely very rare in far south Undai
Bird	Swan Goose	*Anser cygnoides*	-	VU	NT	Likely a regular migrant over the area
Bird	Ferruginous Duck	*Aythya nyroca*	-	NT	VU	Likely a regular migrant over the area
Bird	Short-toed Snake-eagle	*Circaetus gallicus*	Tier 2	LC	EN	Breeds
Bird	Saker Falcon	*Falco cherrug*	-	VU	VU	Breeds
Bird	Egyptian Vulture	*Neophron percnopterus*	-	EN	LC	Probably breeds
Bird	Great Bustard	*Otis tarda*	-	VU	VU	Regular migrant (stops over in the area)
Bird	Houbara Bustard	*Chlamydotis undulata*	-	VU	VU	Breeds
Bird	Relict Gull	*Larus relictus*	-	VU	EN	Likely a rare migrant over the area
Bird	Pallas' Sandgrouse	*Syrrhaptes paradoxus*	-	LC	LC	Breeds
Bird	Mongolian Accentor	*Prunella koslowi*	-	LC	LC	Very localised breeder
Bird	Mongolian Ground-jay	*Podoces hendersoni*	-	LC	VU	Breeds
Bird	Yellow-breasted Bunting	*Emberiza aureola*	-	VU	NT	Likely a regular migrant
Species Assemblage	Granite Outcrop Floral Communities	n/a	Tier 2	n/a	n/a	Khanbogd and other massifs
Habitat	Riverine Elm Trees	n/a	-	n/a	n/a	Mostly in Undai riverbed
Habitat	Ephemeral Lakes and Pools	n/a	-	n/a	n/a	Scattered near to hills in south
Habitat	Tall Saxaul Forest	n/a	-	n/a	n/a	Mostly in borefield and depressions
Habitat	Eastern Gobi desert-steppe	n/a	-	n/a	n/a	Major habitat type in the region – widespread

Critical Habitat Assessment

Priority Biodiversity Features screened Against Critical Habitat Criteria

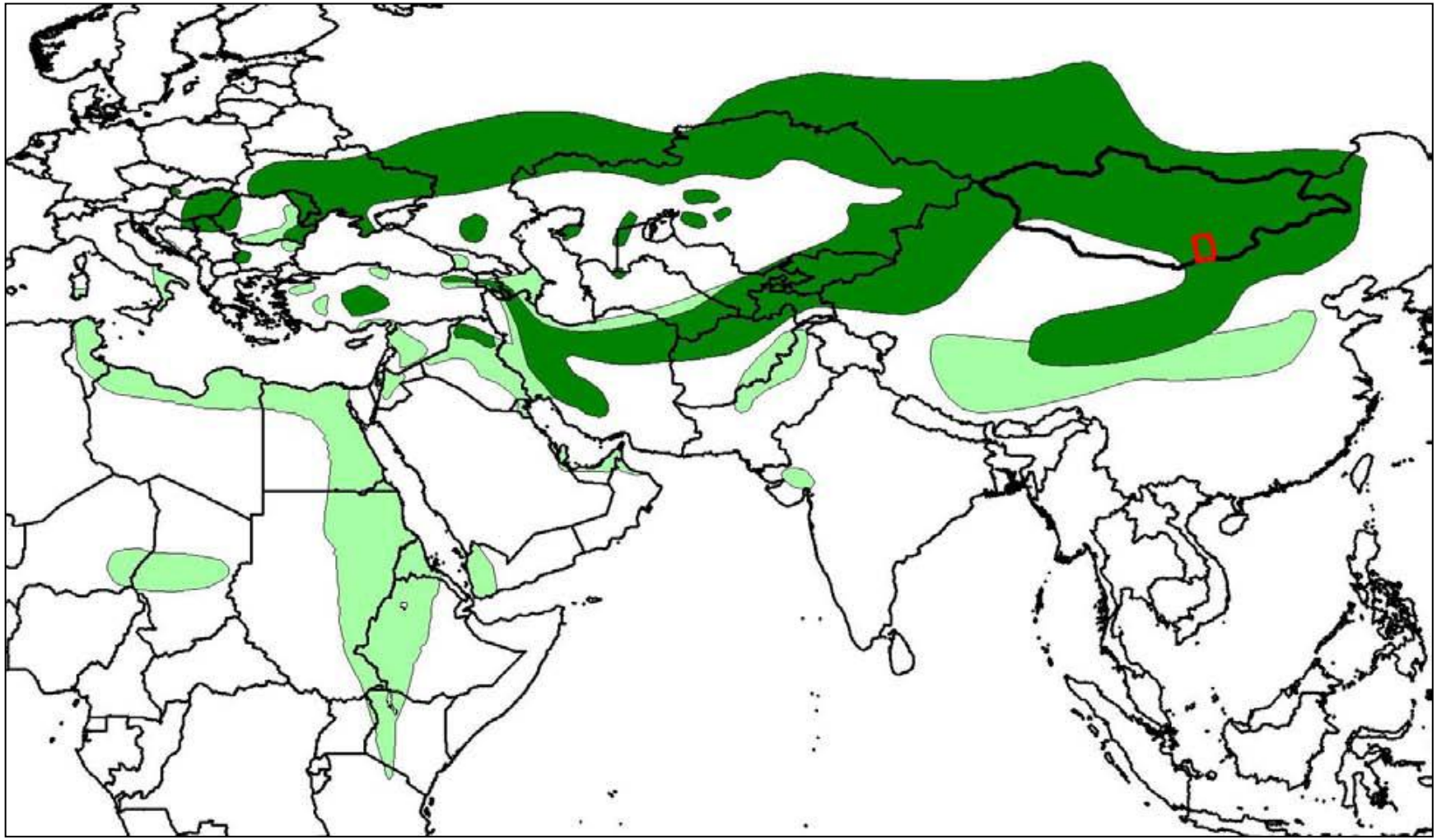


DMU for birds and plants 27,000 sqkm

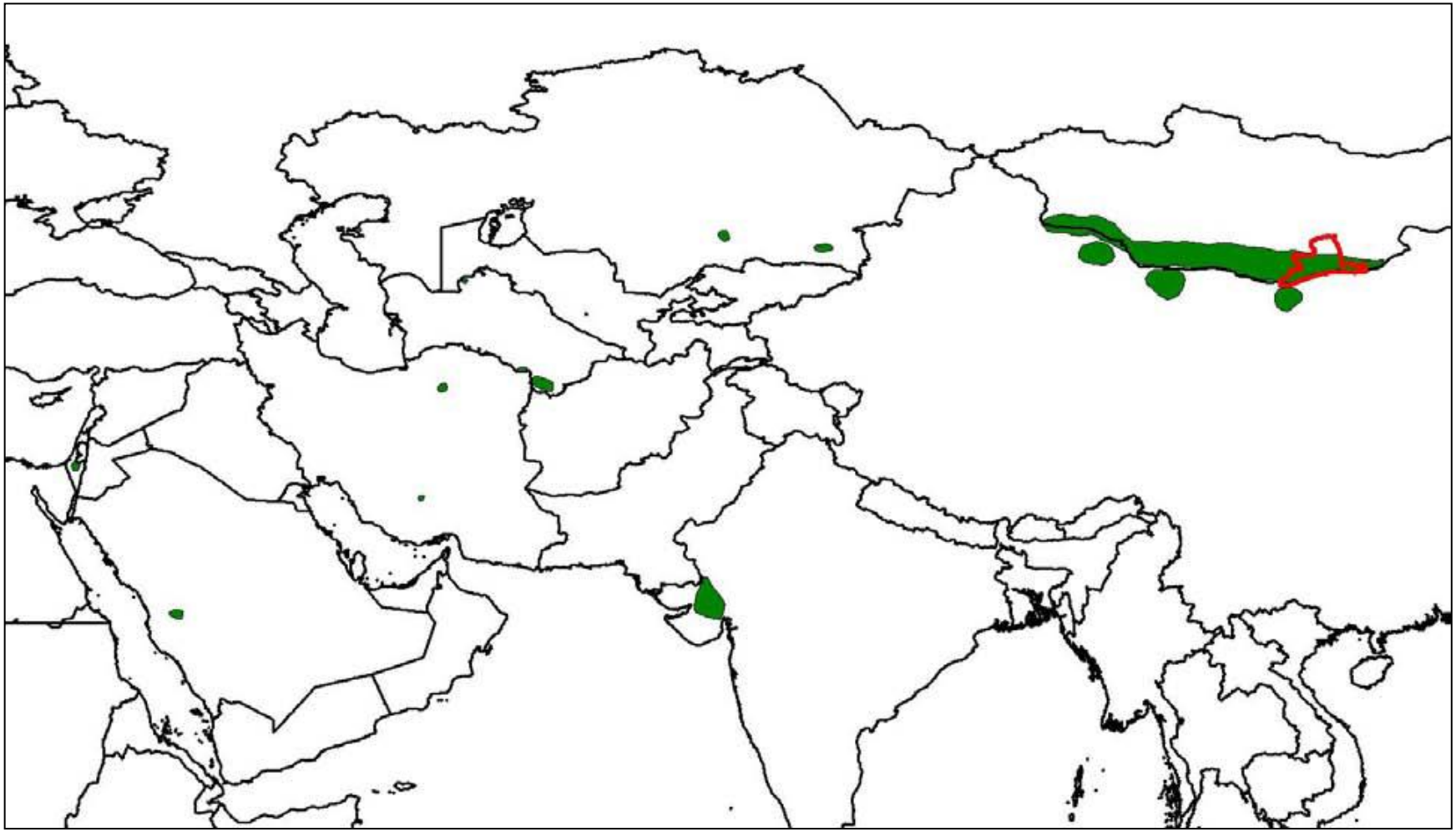


DMU for nomadic mammals 51,000 sqkm

Saker Falcon *Falco cherrug*: does not trigger Critical Habitat at this site



Asiatic Wild Ass *Equus hemionus*: triggers Critical Habitat at this site



Challenges of the Oyu Tolgoi Critical Habitat Assessment

1. Gobi desert vegetation types poorly distinguished
2. Priority species are nomadic species e.g. Asiatic Wild Ass
3. Spatially and temporally dynamic ecosystem
4. Project baseline data patchy in space, time and scope

→ Large-scale Political province proved most useful DMU.

→ Whole DMU identified as Critical Habitat due to

- nomadic species requirements
- spatial / temporal dynamics

Challenges of Oyu Tolgoi residual impact assessment

Diverse infrastructure and diverse biology = species-specific responses

1. **Calculate species-specific Direct impacts**

- Powerline collision impacts on Houbara bustard

2. **Calculate species-specific Indirect impacts**

- Impacts on ungulates
  - Avoidance of roads
  - Connectivity of populations

3. **Calculate species-specific secondary impacts**
  - induced access and immigration
  - increased illegal hunting
  - increased populations of feral predators

Design of species-specific mitigation options

Such as

- Powerline flight-diverter mitigation on Houbara bustard
- Underpass design for nomadic ungulates
- Speed controls on roads
- Control of bushmeat transport
- Control of feral predators e.g foxes
- Restore key vegetation e.g. Saxaul, Elm trees along watercourses

Design of species-specific offset projects

- Offset sites constrained by distribution of Asiatic Wild Ass

- Offset projects constrained by traditional cultural herding and rangeland management techniques

- Offsets further constrained by cumulative impacts: (await TNC DbD results..)

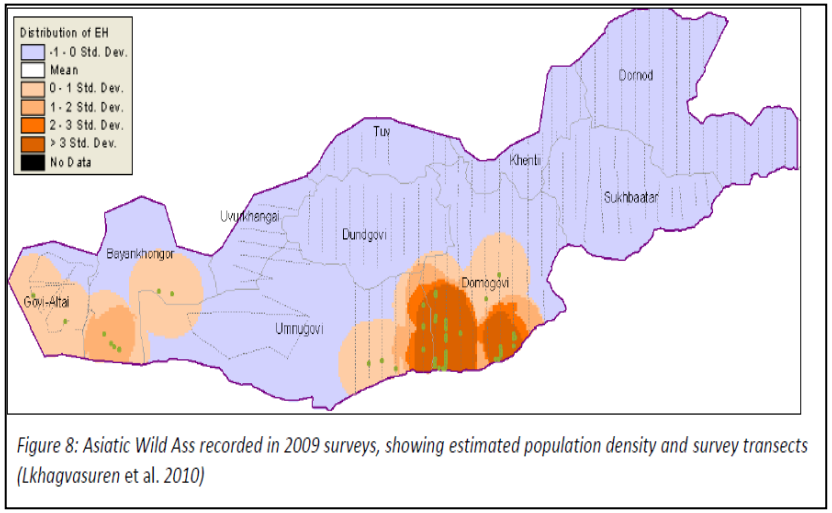
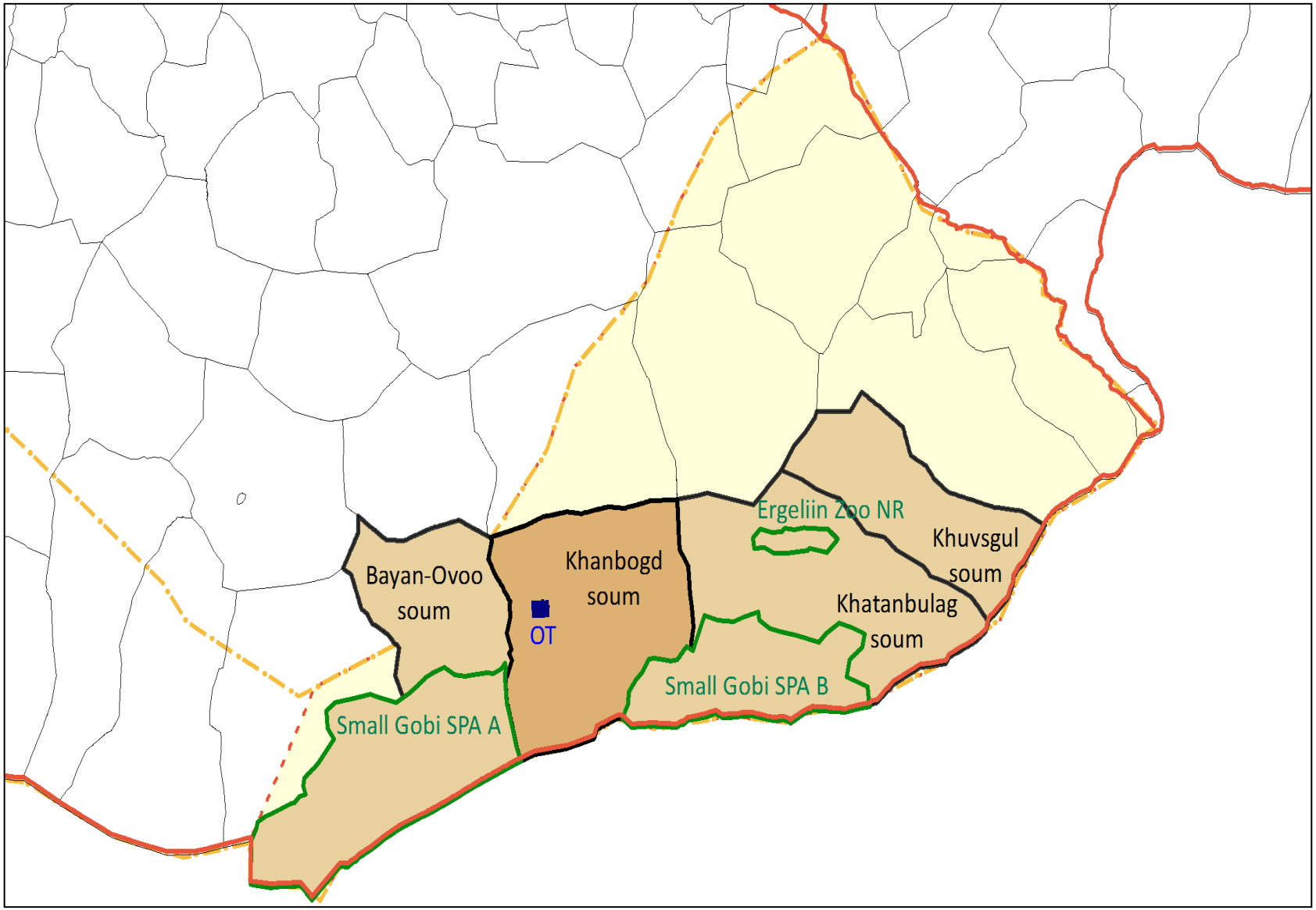


Figure 8: Asiatic Wild Ass recorded in 2009 surveys, showing estimated population density and survey transects (Lkhagvasuren et al. 2010)

The PS6-approved Oyu Tolgoi offset plan and sites: 50,000 sqkm of anti-poaching and rangeland mgt



Reduced illegal hunting and collecting

- Implement 5 Mobile Anti-Poaching Units based on WWF approach
- Build Mongolia government capacity in wildlife crime

Improved rangeland management

- Support herders to reduce stocking ratios
- Compensate herders for opportunity costs
- Develop an alternative livelihoods programme for herders
- Revitalise soum-level grazing plans

Thank you

Questions…

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TBC team – John Pilgrim, Guy Dutson
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