PANNA TIGER RESERVE, PANNA, MP.

NEWSLETTER

(30/06/2022)

MID-YEAR REVIEW

YEAR 2022

"Tiger Population in Panna Tiger Reserve, M.P."

This 'Mid-Year Review, Year 2022' of tiger population in Panna Tiger Reserve (PTR) brings out the status of breeding tigresses and net addition to number of tigers in PTR in calendar year 2022 till the end of June. All known births and all known deaths have been taken in to consideration in coming out with a figure.

1. Tiger Numbers

a) Scenario at the end of the June 2022:

In the 'Yearly Review 2021 of Tiger population in PTR', it was predicted that a total of 12 tigresses will be giving birth in the year 2022 which includes 10 first time tigresses. The list of these 12 tigresses is as following:

Table 1

Tigresses which are expected to produce litter in 2022			
Sr No.	**Tigress**	**Approximate Age**	**Remark**
1	P 641	4	First Time
2	P 642	4	First Time
3	P 152	5	First Time
4	P 213-62	3	First Time
5	P 652	3	First Time
6	P 653	3	First Time
7	P 433-21	3	First Time
8	P 433-22	3	First Time
9	P 433-23	3	First Time
10	P222-32	3	First Time
11	P141	7	Already given 2 litters
12	P433	8	Already given 2 litters

Out of 12 tigresses mentioned in above Table 1, following is the list of 5 tigresses who have already given birth to cubs till June this year:

Table 2

Sr No.	Tigress	Approximate Age	Number of cubs Surviving	Remark
1	P 641	4	2	First Time
2	P 642	4	2	First Time
3	P 213-62	3	2	First Time
4	P433-22	3	2	First Time
5	P141	7	2	3rd Litter
TOTAL			**10**	

** In addition to above 5 tigresses, there is one additional tigress P 234-21 moving at the periphery of Akola Buffer and Territorial division with 2 cubs, moving in and out of Buffer area. Adding P 234-12 also in the list of breeding tigresses, 6 tigresses have given birth to 12 cubs till June in year 2022.*

Pic 1: P213-62 with her two cubs

Pic 2: P141 with her two cubs

As of June 2022, following 16 tigresses have given birth and are in the 'breeding tigresses' category in PTR:

Table 3

Breeding Tigresses of PTR			
Sr No.	**Tigress**	**Approximate Age (in Years)**	**Remark**
1	T6	>11	Produced 6 litters
2	P222	>9	Produced 4 litters
3	P234	>8	Produced 4 litters
4	P433	>8	Produced 2 litters
5	P141	>7	Produced 3 litters

6	P142	>7	Produced 3 litters
7	P151	>5	Produced 2 litters
8	P643	>4	First Litter
9	P234-22	>4	First Litter
10	P234-23	>4	First Litter
11	P141-12	>4	First Litter
12	P 641	>4	First Litter
13	P 642	>4	First Litter
14	P 433-22	>3	First Litter
15	P213-62	>3	First Litter
16	P234-21	>4	First Litter

The above list of 'breeding tigresses' does not include tigresses T1 and T2, as due to their old age they might not further breed. T1 has not produced any litter for last 6 years while T2 has not produced litter for last 4 years.

So, in addition to 16 breeding tigresses at present, following 7 tigresses are also likely to be added in this list of breeding tigresses by the end of year 2022:

(1) P 152 **(2)** P 652 **(3)** P 653 **(4)** P 433
(5) P 433-21 **(6)** P 433-23 **(7)** P 222-32

In all, it is expected that PTR will have 23 breeding tigresses by the end of year 2022.

As per recent estimates through Continuous Camera Traps, PTR has around 57-60 tigers (40-42 adult + 17-20 sub-adult) along with 12-14 cubs. As per data collected, adult sex ratio (M/F) is 0.58 while for sub-adults, sex ratio is nearly 1. Overall (adult + sub-adult) sex ratio is 0.74.

b) Expected addition to tiger population in year 2022:

As detailed in Table 2, six tigresses have produced litter with total 12 cubs till June this year.

For the loss, one male Tiger, above the age of one year, died till June this year (Tiger P 111, aged >12 years).

Tigers are continuously moving across the boundary of PTR in to the Panna Landscape. There is not only outward movement, it has been observed that tigers which were earlier considered disperse in to landscape have returned back to PTR. This flow of tigers inside and outside of PTR is difficult to predict, monitor and manage. In fact, in addition to dispersal into 'Panna Landscape' for space and suitable habitat, tigers are exploring new areas within PTR boundaries, which were earlier having no presence of tiger. This observation is strengthened from the fact that for the first time, 5 tigresses (P222, P641, P642, P643 and P433-22) have given birth and raring cubs in Forest Ranges of PTR West of Ken river, in Chhatarpur district. Recently, tigress P141-12 with her cubs have been seen in areas west of Ken river in the Core area of Chandranagar Range, while earlier she was reported in areas East of Ken river in the Core area of Madla Range. Presently, at least 8 adult tigers along with 10 cubs are present in Forest Ranges West of Ken river within the boundary of PTR, in Chhatarpur

district. This number will grow further as lots of habitat improvement work has been done in these areas assessing their potential in becoming good tiger habitats. Akola Buffer area in Panna Buffer Range also presents a unique situation. Akola Buffer is an area of nearly 70 sq km, bordering Core on western side and revenue villages on eastern side, and has 4 breeding tigresses (P234, P234-21, P234-22 & P234-23) with 9 cubs (age varying from 8 months to 15 months) residing in it. At least 4 male tigers are seen in this area. Such high density, so close to human habitation (Panna city is only 8-10 km away), is a matter of concern.

Taking two cubs as average litter size, it can be predicted that 14 more cubs from 7 tigresses who are expected to give birth, will be added in Tiger numbers in PTR by the end of year 2022. Hence, a total of 26 cubs are predicted to be added in the year 2022 in PTR. Taking survival rate of 70% for cubs, 18 cubs may survive and add to the population of tigers in PTR.

Death are hard to predict but with increasing numbers of tigers, there will be more conflicts, amongst tigers and between human and tigers, which will lead to more tiger deaths. There were two tiger deaths (above one year of age) inside PTR in year 2021. The year 2022 has seen one tiger death (above the age of one year). Even after taking higher numbers of tiger mortality than average, PTR will see an addition of 12-14 tigers in year 2022. This may take tiger population including cubs in PTR to around 84-86 by the end of year 2022, which is in consonance with the tiger numbers predicted for year 2022 in 'Brief Note on Tiger Population Dynamics and its Future Projection in PTR' published by PTR in December 2020.

2. How much Tigers PTR can sustain?

It is an accepted fact now that tiger population in PTR is increasing exponentially. It is a surprise to many people that how PTR is able to have this kind of tiger numbers! Let's calculate numbers.

In PTR, herbivore (ungulates) density for Core area (576 sq km) is around 40 per sq km while for Buffer (total area 1021 sq km), it is around 16 per sq km. Hence, total herbivore (ungulates) population in PTR is around 40,000.

I. Tigers:

Taking minimum requirement of 50 prey per year per tiger and a cropping rate of 10%, total prey requirement (Nilghai, Sambar, Cheetal & Wild Pig) for a tiger in a year would be around 500. As per recent estimates of 57-60 tigers (adult + sub-adult) in PTR, the requirement of prey will be around 28-30,000.

II. Leopards:

PTR has nearly 270 leopards (as per 2018 estimates) spread all over PTR. Leopards also mostly have same prey base. As leopard is nearly one fourth to one fifth in weight of a tiger, taking same prey requirement for the leopard, prey requirement for the leopards will be around 27-30,000.

Hence, total requirement of prey for both tiger and leopard in PTR would be around 55-60,000 against the availability of around 40,000 prey. We can further add around 500 cattle killed by tiger or leopard in a year in PTR. Still, we are more than 10-15000 less prey than required. That is 25% less than required. It seems PTR is having more tigers and leopards than it can sustain! Tigers bound to explore newer areas, inside or outside PTR.

3. Conclusion

Tiger population in PTR is in its growth phase. This increasing trend will continue for few more years before population stabilizes. At what number it will stabilize, one can only make an educated guess at this point of time, based on the expectation of tiger occupying new areas in PTR. But there are enough indications based on statistical evidences that the tiger number in PTR will touch 100 much sooner than earlier predicted. Increasing tiger population will put lots of pressure on leopard population. As per current tiger occupancy status, area occupied by tigers in PTR is around (550 sq km of Core and 350 sq km of Buffer) = 800 sq km. With the available prey in this tiger occupied area, even tiger number of 50 seems to be on higher side. It has been observed that in certain areas like Akola Buffer, tiger territory has reduced to too small, and as this area has become natal area for 4 breeding tigresses, there will be more stress on tiger population and it may see more infighting in future. In terms of density, based on current tiger occupied area of nearly 800 sq km, the tiger density in PTR is around 7 per 100 sq km, which is comparable with Kanha TR (6.08) and Ranthambore TR (7.22).

Tiger population, in future, will increase in those areas of PTR which are yet to be occupied by tigers at present. There are two areas which hold potential for future rise in tiger population in PTR. First, area North of NH 39 (passes through the Core area of PTR) which includes both Core and Buffer. This area, nearly 200 sq km (includes Core area of Madla range and Gangau Sanctuary North of NH 39, as well as Buffer area of Panna Buffer range) holds potential for future rise of tiger population in PTR. This potential area can have 3-4 breeding tigresses with a net addition of around 10-12 tigers in PTR. Also, this includes an area known as 'Ballyya Seha', part of Core area of Madla range, where historically tigers were always reported, but is currently without tigers. Main reason seems to be passing of NH 39 which deter tigers to cross it.

Second, area West to Ken river, especially in Kishangarh Buffer Range, is also suitable for expansion of tiger territories. Currently nearly 90-100 sq km area of the Kishangarh Buffer range has presence of tiger. Rest of the range area, nearly 160 sq km of forest area, is predicted to see fast rise in tiger population due to low biotic pressure in the Buffer area. This area is also further connected and in continuation with forest area of Chhatarpur Forest division.

With the start of rainy season, migration of tigers, especially young tigers, for newer territories starts as availability of water is assured all around. This rainy season may see young tigers from Akola Buffer area, P 234-23-(11)(12)(13), from Amanganj - Gahrighat area, P 213-32-(21)(22)(23)(24), from Madla range, P141-(21)(22) moving in to newer areas and occupying new territories. PTR management is all geared up for protection and management of tiger and tiger habitats.

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