

On the Trail of Tigers

Tracking Tiger in Traditional East Asian Medicine (TEAM)

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Tigers – *Panthera tigris*

- 8 known sub-species:

- Bengal (*P. t. tigris*) - ~ 3,000
- Indochinese (*P. t. corbetti*) - ~1500
- Amur (*P. t. altaica*) - ~ 400
- Sumatran (*P. t. sumatrae*) - ~ 400
- Amoy (*P. t. amoyensis*) - none in wild for 25 years
- Bali (*P. t. balica*), Caspian (*P. t. virgata*) and Javan (*P. t. sondaica*) - all extinct in last 50 years



Poaching of Tigers

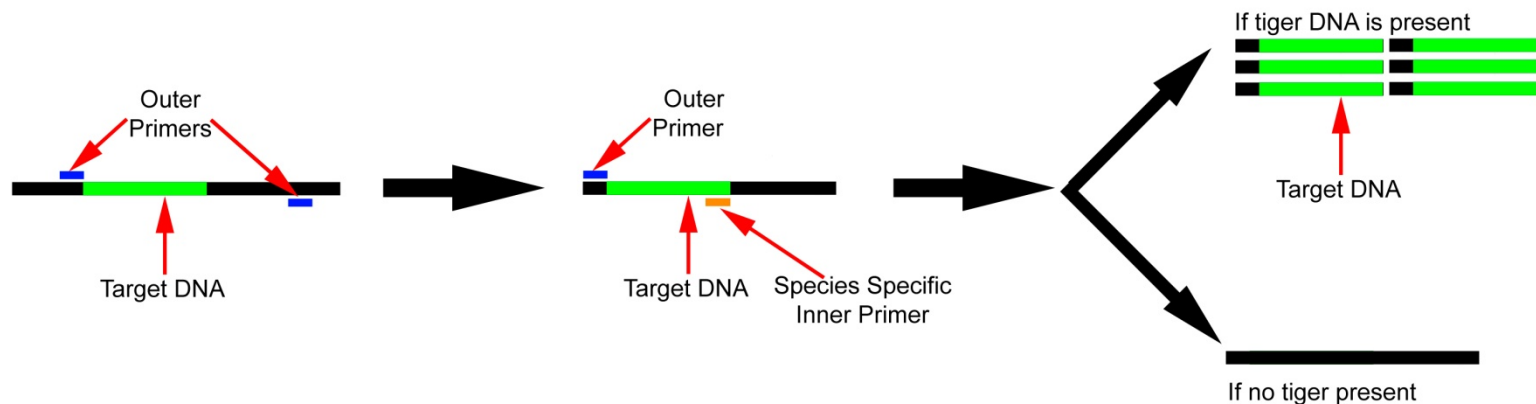
• Tiger and tiger derived products include:

- Meat
- Pelts
- Medicine



Detecting Tiger DNA

- In TEAM expect:
 - Large amount of plant components
 - Small amount of highly fragmented tiger DNA
 - Use the mitochondrial genome
 - Use a highly sensitive test: nested PCR



Designing Primers

Leopard	ATGACCAACATTTCGAAAATCACACCCCTCATCAAAATTATTAATCACTCATTGAT	60
Lion	ATGACCAACATTTCGAAAATCACACCCCTTGTCAAAATTATTAATCACTCATTGAT	60
Tiger	ATGACCAACATTTCGAAAATCACACCCCTTATCAAAATTATTAATCACTCATTTATTGAC	60
Cat	ATGACCAACATTTCGAAAATCACACCCCTTATCAAAATTATTAATCACTCATTGATCGAT	60
Human	ATGACCCCAATACGCAAPATTAACCCCTAATAAAATTAAATTAACCACTCATTGATCGAC	60
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Leopard	GTATGTTTAAATCTACAAATTCTCACCGGCCTCTTTCTAGCCATACATTATACATCAGAC	180
Lion	GTATGTTTAAATCTACAAATTCTCACCGGCCTCTTTCTAGCCATACATTACACACCAGAC	180
Tiger	GTGTGCTTAAATCTTACAAATCCTCACTGGCCTCTTTCTAGCCATACACTACACATCAGAC	180
Cat	GTCTGCTTAAATCTTACAAATCCTCACCGGCCTCTTTTGGCCATACACTACACATCAGAC	180
Human	GCCTGCTGATCTCTCAAAATCACACAGGACTATTCCTAGCCATACACTACTCACACAGAC	180
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1. Cat Specific - Area of homology

2. Tiger Specific - Area of variation

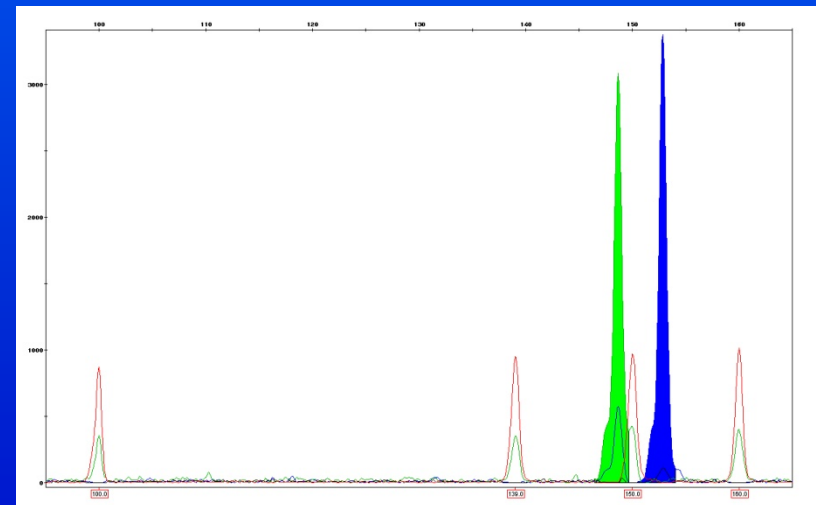
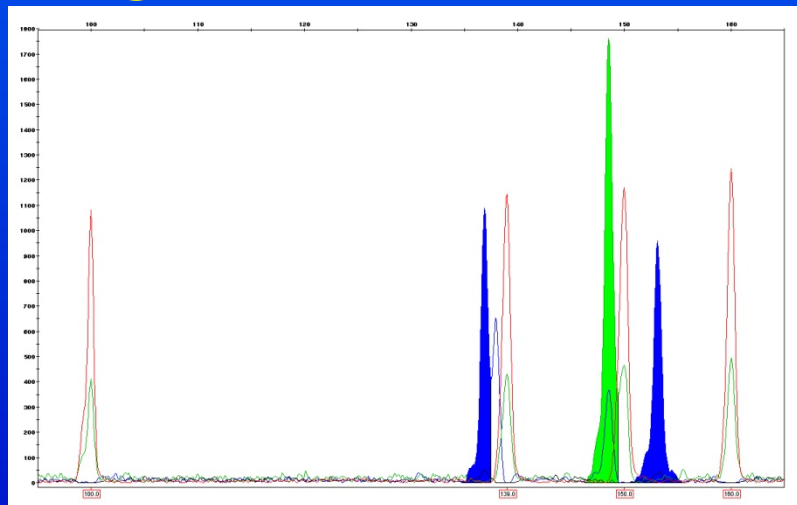
Control Samples



P. tigris



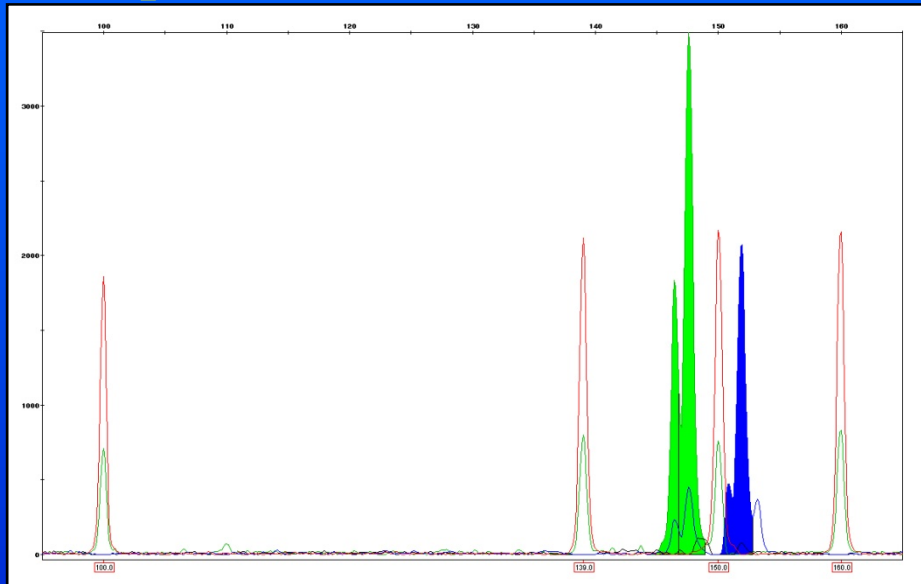
P. leo



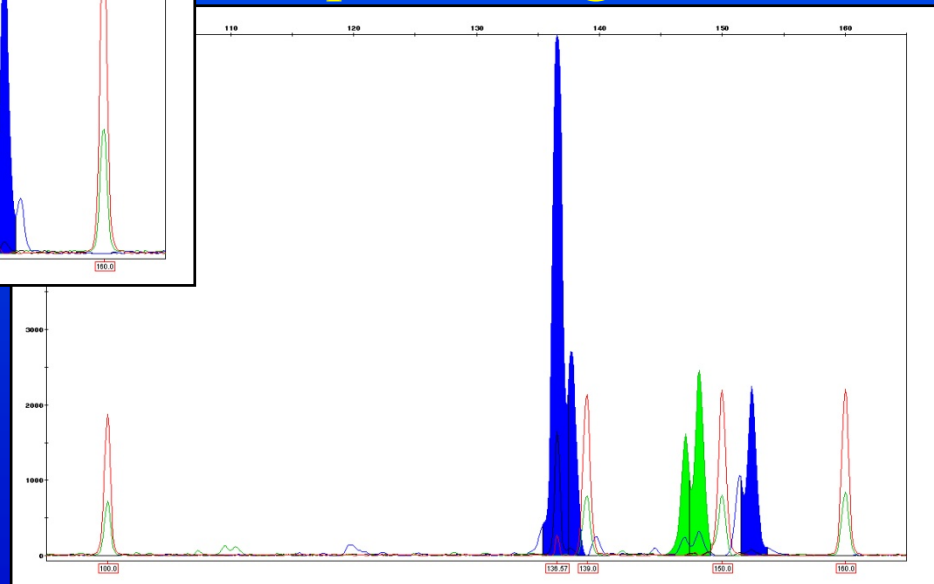
P. tigris specific expected at 136 bp & Panthera genus at 147 & 151 bp

Sample Testing

Sample 1: Panthera



Sample 3: *P. tigris*



Estimated at fewer than
200 copies of mtDNA
= 3.40 fg (10^{-15} g)

Conclusion

- Tiger DNA was detected in one of the samples tested.
- It is illegal to export or import tiger products.
- Therefore tiger products obtained in the UK must have been obtained from illegal activities.



Acknowledgements

Royal Zoological Society of Scotland



Isle of Wight Zoo



Wildlife DNA Services





THANK YOU QUESTIONS?

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