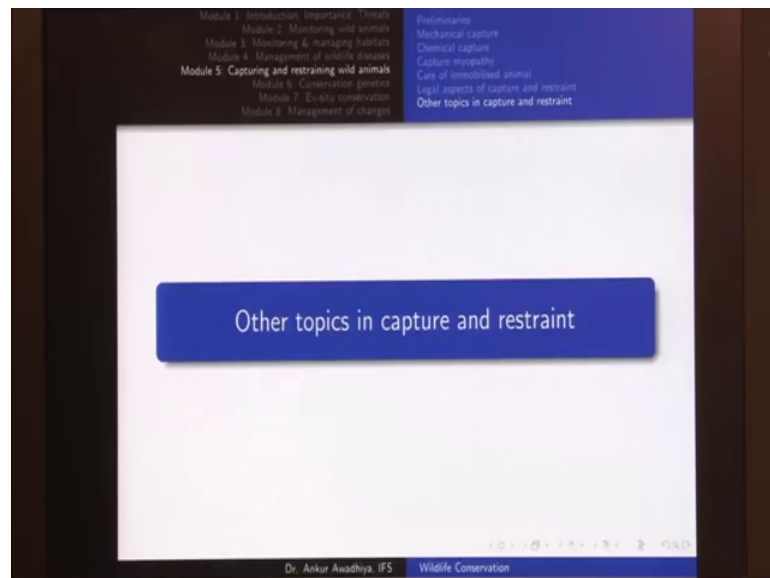


**Wildlife Conservation**  
**Prof. Dr. Ankur Awadhiya**  
**Indian Forest Service, M.P.**  
**Indian Institute of Technology, Kanpur**

**Lecture - 24**  
**Other Topics in Capture and Restraint**

In today's, lecture will have a look at some other topics related to the Capture and Restraint of animals including the design of trap cages the transportation of animals and also the human safety factors that need to be considered whenever we are doing a capture and restraint operation.

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So, let us begin.

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### Design of trap cages I

Annexure-16<sup>2</sup>

1. Trap cages should be completely enclosed (new designs use fiberglass) with holes for ventilation.
2. Iron rods should not be used (thick chain link is preferable) anywhere in the trap cage as leopards struggle to escape by pulling at the bars which results in canines being broken.
3. Old rusty, iron cages should be discarded, and not used to house leopards.
4. There should be a gap of 1.5 inches between the cage floor and the lower edge of the trap door to prevent tails getting slammed.
5. Trap cages should be well ventilated.

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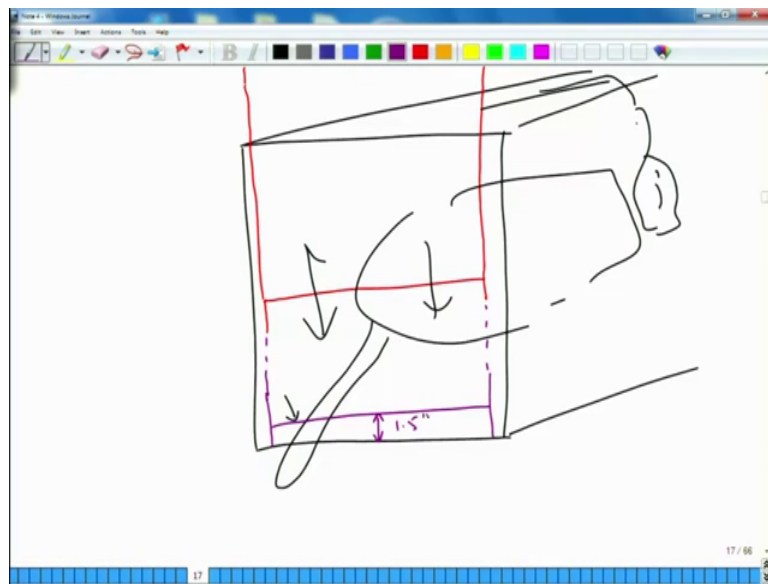
With the design of trap cages know these are the guidelines that have been issued by the ministry of environment and forest. So, will just go through these guidelines one by one; there is nothing very deep to consider about it, but you should just keep this in mind. One trap cages should be completely enclosed and new designs use fiberglass with holes for ventilation. Iron rods should not be used thick chain link is preferable anywhere in the trap cage as leopards struggle to escape by pulling at the bars which results in the canines being broken.

Now, why should we not have an iron rod because consider that there is a leopard inside a trap cage and there are iron rods there. So, the leopard will try to bite into all these iron rod in an effort to try to get out. Now iron being a very strong material and tooth being not that stronger material. There have been a number of cases in which the leopards lose their canines. Now as we know canines are the teeth that I used for shredding of the meat.

So, if a leopard loses its canines. So, all it is canines are broken down. So, in that case the leopard will no long no longer be able to feed itself. And then it will become a responsibility of the department to keep this leopard throughout its life in a in a departmental facility. In which it would have to be provided with very different kinds of supplementary feeds.

So, that it survives. So, which is why we should not be having iron bars or iron rods and the trap cages. Old rusty iron cages should be discarded and not used to house leopards. There should be a gap of 1.5 inches between the cage door and the lower edge of the trap door to prevent tails being slammed. Now we saw the operation of one of such traps in the form of a video in one of the earlier lectures, but what this point actually means is that if you have.

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Your trap cage and this is the bottom side and we have door that is here.

Now, if the door is like this, what would happen is that when the leopard gets inside and it is eating the bait that was hanging here and this bait is connected to a trip wire that is operating this gate. So, when the leopard is inside we might be having the situation in which it still is outside. Now when it bites into this piece of meat the store will slam shut it will move down. And then it will hurt or even cut the tail. So, essentially in the design of the doors what we have is that we have these two bars that are protruding down.

So, when this whole of when this door comes down it will be in a position like this. So, when this door has come down even then there is a space left here of close to around 1.5 inches.

So, there should be a gap of 1.5 inches between the cage door and the lower edge of the trap door to prevent tails getting slammed. Now trap cages should be well ventilated.

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### Design of trap cages II

6. Trap cages should be at least 6 feet in length with the trap door activation system being at the opposite end of the trap door. The height of cage should be around 4-4.5 feet and width 3.5 feet. Cages made of fiber glass (currently being used in Maharashtra) are lightweight and can be carried by 4 people. Collapsible cages should also be designed and physically tested in the field to assess their effectiveness.

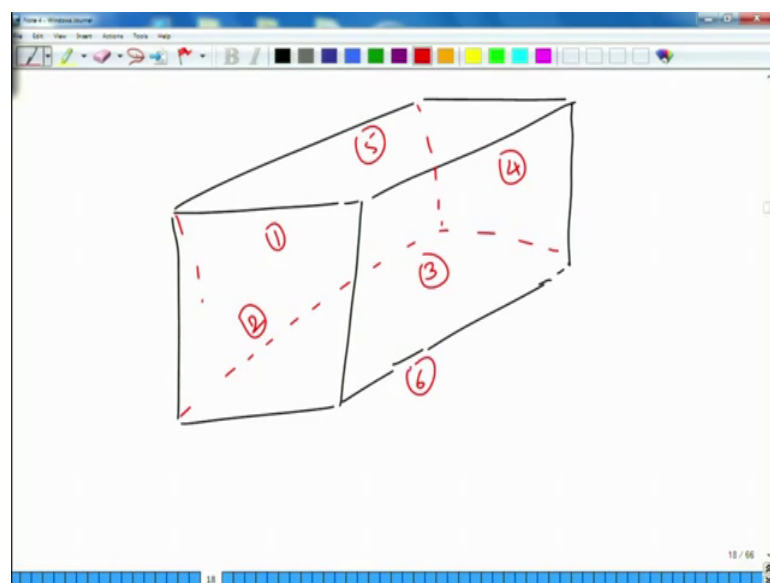
7. Some Do's and Dont's for holding leopards in trap cages:  
(a) Trap cages should not be used for long term captivity (no more than one week). Separate temporary transit facility should be created for long term captivity.  
(b) Only one animal can be held at a time in a trap cage.

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Trap cages should be at least 6 feet in length with the trap door activation system being at the opposite end of the trap door. The height of the cage should be around 4 to 4.5 feet and width of around 3.5 feet. Cages made of fiberglass currently being used in Maharashtra a lightweight and can be carried by four people. Collapsible cages should also be designed and physically tested in the field to assess their effectiveness.

Now, what do we mean by collapsible cages if you have a cage.

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That is in the form of a box. Now this is your cage and it is completely made out of say a measure or say a fiberglass. So, in that case this cage will have to be carried in totality into the field. So, essentially all of these panels especially, when they are made out of metal like iron their extremely heavy.

So, they required quite a lot of people. And when you have a large sized cage then it becomes even more difficult to transport and place it out there in the field. Now in the case of collapsible cages what happens is that all of these frames. So, here we have 6 frames. So. So, this is one frame the front is the second frame three four then the top frame and the bottom frame.

So, here we have six different frames. In the case of collapsible cages they are made out of two sorts of design. One design is that these walls will just pulled into each other. So, that this whole cage becomes sort of a sheet of metal. So, then you can carry it to the field much more easily. The second design is in which all of these panels can be removed and then you can take carry them out them in the field and then reassemble them.

So, now in the case of collapsible cages we have got two different advantages. One because it is shape is not take this. So, essentially if you are moving inside the forest area and if you have trees that are close by and you have this big box it is difficult to carry it inside.

Secondly, these large size cages also required quite a substantial amount of area or volume when they have to be transported by a truck. Now when we are doing any capture operations especially in the case of animals that are getting into the village areas what we do is that we do not set up a single trap we would say setup five or six different traps. Now if all of these this traps also large in size.

So, we would require say six trucks to carry six trucks, but in the case of a collapsible design you can just fold all of these traps together in these stack them in one truck and then carry all of these six traps there the reassemble out there in the field. And once your leopard has gotten into one of those traps than one trap will have to be carried in totality outside, but the other trap can again be disassembled or fold it back and then straggled into the truck.

So, essentially are requirements of transportation reduced drastically; if we are going for a collapsible or a trap that can be assembled and disassembled. Now some do and do not for holding leopards in trap cages. Trap cages should not be used for long term captive no more than one week separate temporary transit facility should be created for long term captivity.

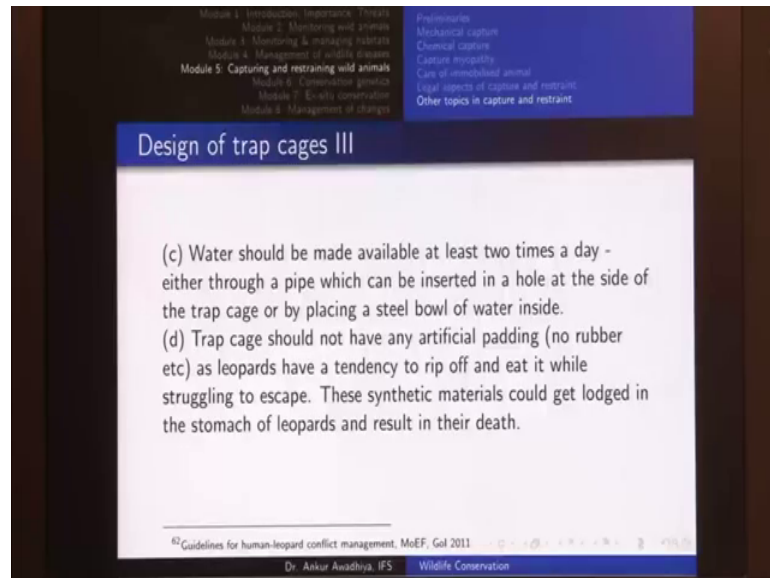
Now, why is that so? Because whenever we are designing a trap or when or whenever we are designing a transit cage for the transport of the animal both of these have very different design requirements.

So, in the case of a trap you require mechanisms through which you can open and close these doors just by the animal eating the bait that is kept inside the trap whereas, in the case of transport cages you do not have any such requirements. So, in the case of those cages and which the leopards are held in a holding facility or when this leopard trapping transported it makes much more sense to go for a design that is specially optimized for those purposes.

So, in that case not only is the weight reduced, but also the chances of the leopard harming itself also reduces. Next only one animal can be held at a time in a trap cage. Now this is also specially important because if you are keeping more than one animals in the same trap cage then out of these stress these animals may start fighting with each other and maybe even severely wound each other or maybe even one or both of those animals where die. So, it is extremely important that whenever you are holding these animals in a holding facility or whether you are transporting these animals they should be transported one in each cage.

So, this is a situation that is very different from what we saw in the case of herbivores. In which we prefer transporting those animals as a herd.

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Next water should be made available at least two times a day either through a pipe which can be inserted in a hole at the side of the trap cage or by placing us steel bowl of water inside. Now this is important when you are holding the animal in the captive facility in the holding facility. In the case when we are transporting the animals we tried to feed the animals before transporting and then we try to minimize their transportation time.

So, that they can be carried out in the field and then release as soon as possible; so, essentially when we are transporting leopards this is not much of a consideration because our main objective is to reduce the transit time. So, it is very unlikely that the animal will be feeling hungry or thirsty because it would have received a substantial amount of feed before being transported. Now trap cage should not have any artificial padding no rubber etcetera is leopards have a tendency to rip off and eat it while struggling to escape. These synthetic materials could get lost in the stomach of leopard and result in their death. So, this is very obvious.

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### Transport of captive wild animals I

CZA Guidelines for transport of captive wild animals <sup>63</sup>

1. Animals in good health only should be transported. Sub-adult animals should be preferred for transportation.
2. Pregnant or females which have recently given birth should be avoided for transport.
3. Infants and too young, incapable of feeding themselves should also not be transported unless prior arrangements have been made for taking all due care for the same.
4. The antlered animals in velvet should not be transported.
5. The animal should be separated from the herd, if needed, sufficiently in advance before transport and complete health check

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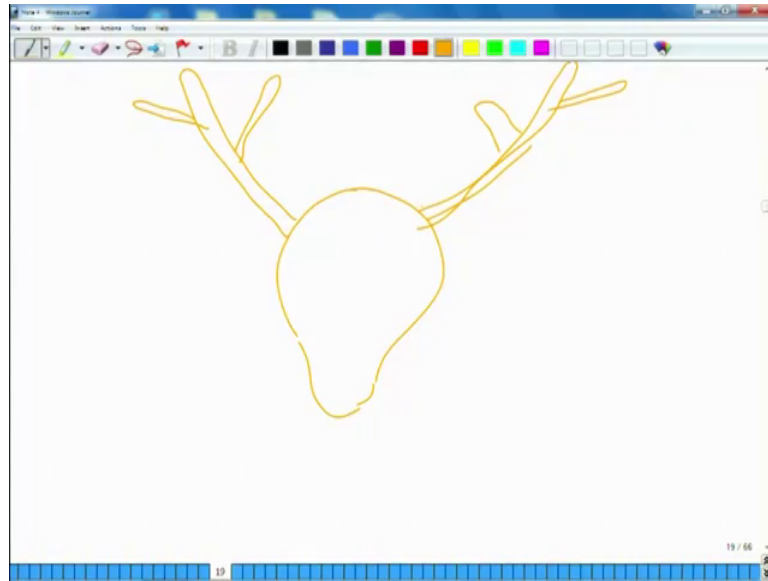
Now, when we are transporting captive wild animals then for that we have the C Z A guidelines. Now C Z A is transferred to central zoo authority of India; so, because we regularly transport animals from one zoo to another.

So, these guidelines are given out by the C Z A. Now says that animals in good health only should be transported (Refer Time: 10:14) animals should be preferred for transportation. Now this is not exactly applicable when we are transporting a conflict animal because whatever animal we are found in the field it would have to be transported, but yeah when we are transporting animals from say or captive facility or holding facility into the forest then it always makes my strength to ensure that those animals are in good health.

So, any amount of the veterinary care that needs to be provided to the animals can be reused to be provided in the holding facility. Pregnant or females which have recently given birth should be avoided for transport because we want to see to reduce the amount of stress that they would get. Infants and too young in capable of feeding themselves should also not be transported unless prior arrangements have been made for taking all due care for the same. The antlered animals and velvet should not be transported. Now what do we mean by antlered animals and velvet. In the case of a number of deer species we would observe.



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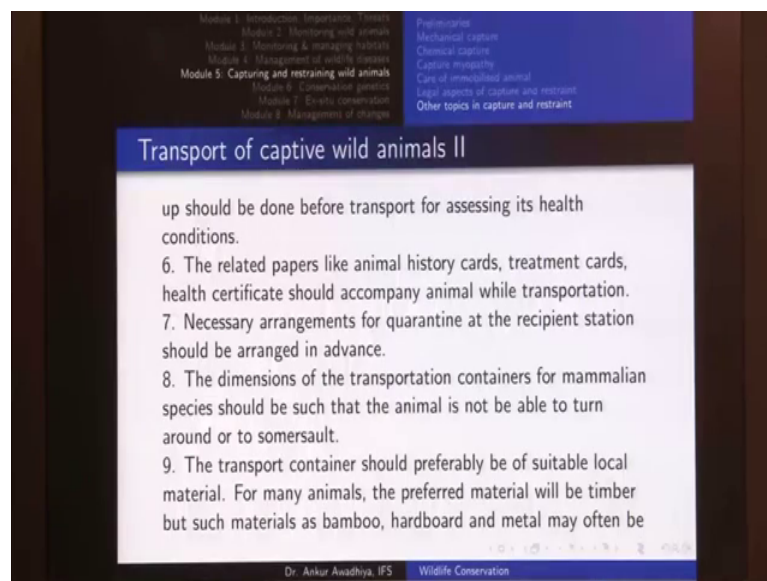
That suppose this is the front of the animal. It would grow these projections that go by the name of antlers. So, these antlers are made of the same material as our hair. So, it is made out of keratin and it also has a number of calcium salts inside, but when these antlers are being form.

So, one difference between antlers and horns; so, like cows have horns in the case of horns those are permanent structures those are bony structures and their negotiate. In the case of antlers these deer species would be growing up antlers every year I mean the males of their species would be a growing up antlers every year. And then these are a primarily meant for display purposes during the mating season and after the mating season is over all of these antlers would then shred off.

So, they will fall down and then the cycle will go on again and again every year. Now in the case of antlers when these antlers are just beginning to grow or when they have just reached to their maximum size they are covered with a surface that looks very much like a velvet. Now that surface contains a lot of blood vessels; so, essentially if you cut that surface this animal will start bleeding. So, when you are transport in animals that are having antlers in velvet. Then what happens is that if you have a number of animals then there antlers might rubber means each other or they might hit each other in their velvet phases. And then these animals might start giving out blood and. So, that will be extremely dangerous for this animal.

So, which is why it says that the antlered animals in velvet should not be transported. So, they should be transported either after the velvet has gone off and these antlers have become hard structures or when these antlers have been shed preferably when the antlers have been shed because in that case they will be the animals injuring each other. The animal should be separated from the herd if needed sufficiency in advance before transport and complete health checkup should be done before transport to associates health conditions.

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So, this is obvious the related papers like animal history cards treatment cards health certificate should accompany animal while transportation.

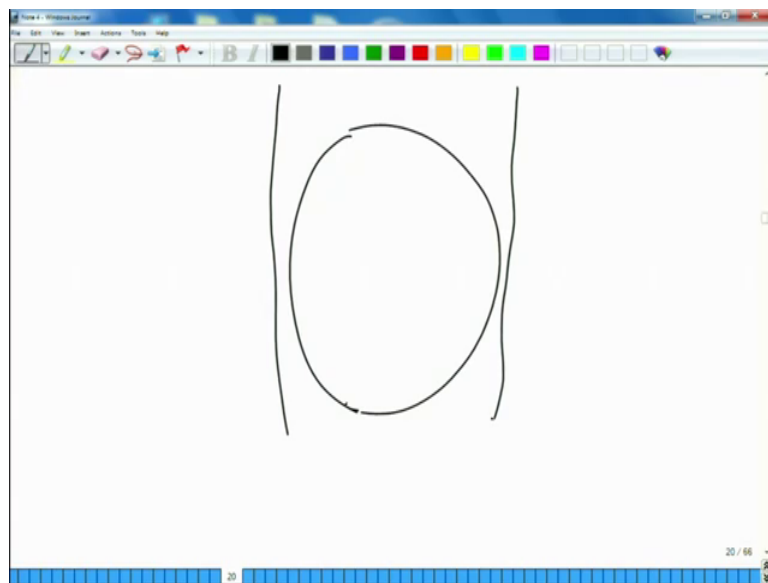
So, this is one as per that we saw in the previous lecture as well. So, in the case of the legal aspects whenever you are transporting any animal from point A to point B it has to be done with the prior permission of the chief wildlife warden. So, whenever you are transporting the animals it is essential that all the related peoples are in place. Necessary arrangements for quarantine at the recipient station should be arranged in advance. So, again as we talked about in a previous lecture that planning and fore planning are very important.

So, basically if you reach with your animal into an area and you find that the quarantine facility has not been set up or is not in a proper place then it does not make a very good sense and you will have to keep that animal in captive condition for a long period.

So, that is not also good for the animals. So, it is always better to have the current in a facility in place before you have started transporting the animal the dimensions of the transportation containers for mammalian species should be set that the animal is not able to turn around or to somersault.

So, essentially if you have.

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Transport facility for an animal that is of the size then the walls should be very close to this point. So, that this animal is not able to turn itself and also it is not able to somersault. It is also very important because why you are transporting the animals then because during transportation these animals may fall down. If there is enough space for them to move around or to fall down; so, in that case because the floor of these crates are made out of metal in most cases. So, the animal will not be able to come back or stand by itself it will require quite a lot of support.

So, it is always better to have a smaller size cages. So, that the animal is able to stand there, but is not able to move here and there. Now in the case of immobilization of animals we saw that every animal has a particular recumbency that should be preferred for that animal.

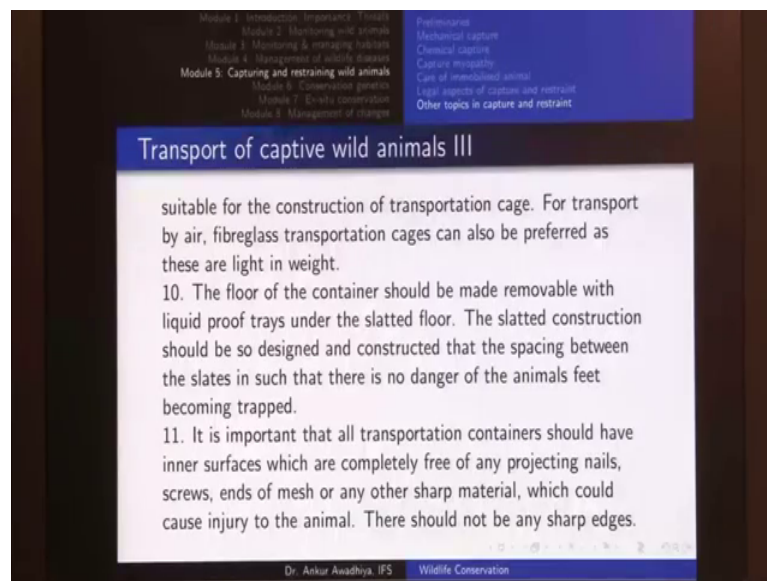
So, for instance in the case of elephants, if they if they are down like this in external recumbency. So, although the pressure of their weight comes into their chest into the

lungs and the heart and then these organs may stop functioning on may have a reduce functioning.

So, that becomes extremely dangerous for the animal. Now a very similar case occurs in the case of transportation of animals as well because when you are transporting the animals and if they get into such recumbency that is not suitable for them then during this transport period we would not be able to check these animals.

So, they might remain in that recumbency for a long period of time and they might even die. So, which is die it says that are the dimensions should be such that the animal is not able to turn around how to somersault how to fall down. Now the transport containers should preferably of local of suitable local material for many animals the preferred material will be timber. But such materials as bamboo hardboard and metal may obtain be suitable for the construction of transportation cage.

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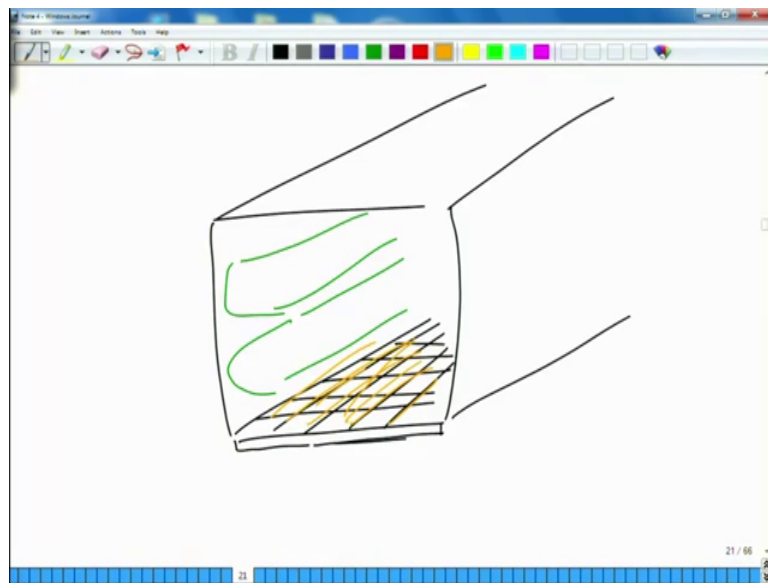


For transport by air fiberglass transportation cages can also be preferred as these are light and weight. So, this talks about the materials we generally prefer to have local materials because not only it reduces the cause, but at the same time if there is any requirement for any maintenance if the if the cages are not functioning properly then they can be very easily repaired because we would be having a local (Refer Time: 17:00) of knowledge to repair those cages. So, local materials are always preferred, but in the case of transport by air fiberglass is preferred as it is light in weight. And as we saw on the previous slides

on leopard capture cages these days we are preparing fiberglass trapped even for the case of leopards.

Now, the floor of the container should be made removable with liquid proof trays under the slatted proof. The slatted construction should be so, design and constructed that the spacing between the slates and are such that there is no danger of the animal feet becoming trapped. Now what do you mean by a slatted structure.

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So, if this is our transport cage. So, the floor of this material would be having a number of horizontal and sideways bars or maybe some rods. So, why do we have such a structured because and then there is a small area here and which it can hold liquids. Now why is this important because then the animals are being transported then, it is possible that they might urinate or they might be above pieces or dunk. Now if that happens and if you do not have this slatted structures.

So, the floor will not remain dry. So, there are two kinds of problems that may come up. One is that the animal when it is put in its own dung then it might get some sorts of infections, but also important is that when you have a floor that is slippery.

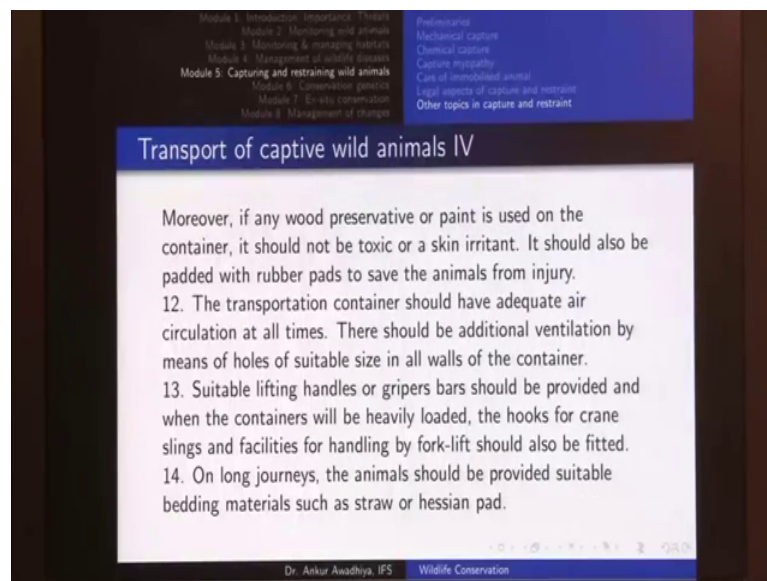
So, the animal may also skid and when its skids then it might hurt itself or it may get into a wrong recumbence position. So, which is why we always go for a slatted floor of the

trays and the floor should be removable with liquid proof trays. So, that any amount of liquid that has been collected there can be easily be cleaned off.

So, we saw in one of the previous lectures on the monitoring of animal diseases that in a number of situations if you are transporting an animal and that animal is disease and if you have use the other same crate or the other same captured trap for some other animal then diseases may propagate from the first animal to the second animal.

To which because of which cleaning of these cages and cleaning of the traps is very important. So, while designing or a trap cages or our traps it makes much more sense to have such a design that can be cleaned easily. Now it is important that all transportation containers should have inner surfaces which are completely free of any projecting nails screws ends of mesh or any sharp material which would cause injury to the animal there should not be any sharp edges. So, the animal is not able to hurt itself.

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Moreover if any wood preservative of paint is used on the container. It should not be toxic or a skin irritant. It should also be padded with rubber pads to save the animals from injury. Now rubber pads are different. So, earlier we saw that in the case of leopards we should not be used any rubber pad because the leopards in a state of stress they might just wrap of the rubber and eat it. So, that might create a problem later on because a leopard may choke on this rubber or it may even choke the elementary canal

the intestine of the stomach of the leopard, but when we are transporting herbivores then in the case of a crates we put some a rubber padding on the sides.

Because these herbivores will not be eating up rubber they do not have those peaks that they would be able to eat of these paddings, but when they are being transported and when they get a shock to the sides. So, this rubber helps to pack the impact. The transportation containers should have adequate air circulation at all times. There should be additional ventilation by means of holes of suitable size in all walls of the container. Now these air circulation holes are not only essential to provide air to the animal, but also as a means of temperature control because if the animal is put into a confinement and there is no movement of air then this container will become very hot after sometime very hot and very humid.

The suitable lifting handles or griper bars should be provided and when the containers will be heavily loaded the hooks for crane slinks and facilities for handling by forklift should also be fitted.; so, that we can make use of these machines.

On long journeys the animals should be provided suitable bedding materials such as straw or hessian pad. So, when we are talking about the bottom portion of this crate. So, in the case of long journey will also put on straws here. So, the animal gets about natural surface and is more comfortable.

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### Transport of captive wild animals V

15. Arrangements for feeding and watering as per the requirement of the species and duration of the journey should be provided.
16. The animals which might have been sedated before their transportation should be transported only under the supervision of a qualified veterinarian only and details of sedation should accompany the animal. Partial sedation in some of the species and individuals when recommended may also be resorted to during transportation.
17. The handling of animals during the transportation should be avoided to the possible extent. The animals should be disturbed as little as possible during the transportation.

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Arrangements for feeding and watering as per requirement of the species and duration of the journey should be provided. Now this is species in the case of long distance transportation. The animals which might have been sedated before the transportation should be transported only under the supervision of a qualified veterinarian only and details of sedation should accompany the animal partial sedation in some of the species and individuals.

When recommended may also be resorted to dunning transportation now if you remember or topics in the legal aspects any amount of drugs that are given to the animals should only be given by the veterinarian as per the veterinary council of India act. So, when if you are transporting an animal under sedation or if you are transporting an animal in which you are giving tranquilizers then this tranquilizers needs to be repeated after sometime. So, veterinarian should all with the accompanying these animals. The handling of animals during transportation should be avoided to the possible extent the animals should be disturbed as little as possible during the transportation. And that is also true in all of the other stages as well.

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Phenanthrene  
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### Transport of captive wild animals VI

18. The transportation of animals should be avoided during extreme weather conditions like dry hot summer and very cold winter.
19. The journey should preferably be performed during day time. The time between 11:00 A.M. to 4:00 P.M. may be avoided during hot summers and nights during winter.
20. While transportation from one climatic zone to another, it is important that the animals are not suddenly moved to contrasting climate to which they are not accustomed. If this is not avoidable, the desired controlled environment should be made available, so that they are exposed to change climatic conditions slowly.

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So, the handling has to be minimized the transportation of animals should be avoided during extreme weather conditions like a dry hot summer and very cold winter. The journey should preferably be performed during day time the time between 11 a m to 4 p m may be avoided during hot summer and nights during winter. Just so, that we are not



exposing are animals to the extremes of temperatures. While transportation from one climatic zone to another it is important that the animals are not suddenly moved to contrasting climate to which they are not accustomed; if this is not avoidable then desired control environment should be made available. So, that they are exposed to change climatic conditions slowly.

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Legal aspects of capture and restraint  
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### Transport of captive wild animals VII

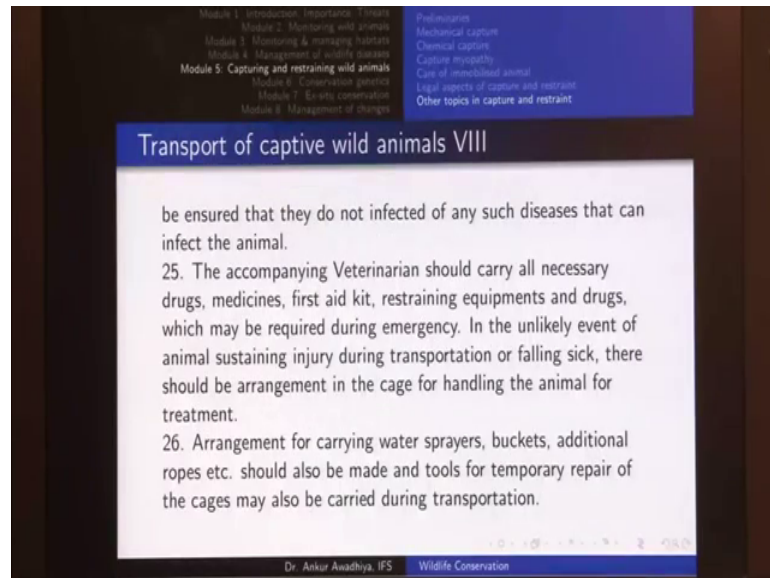
21. The transportation cage should be secured fully to avoid any possible movement or sliding during transport. It is very important to ensure that the transportation cages are kept horizontal throughout the journey.
22. The animal should be accompanied by a qualified Veterinarian and required number of keepers having experience and training in handling individual animals.
23. Every care should be taken to avoid unnecessary discomfort, behavioural stress or physical harm to the animals while crating and transporting.
24. While transporting the animals, due screening of the staff involved in transportation of animal should be made and it must

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The transportation cage should be secured fully to avoid any possible movement of sliding during transport. It is very important to ensure that the transportation cages are kept horizontal throughout the journey. The animal should be accompanied by a qualified veterinarian and required number of keepers having experience and training in handling of individual animals. Every care should be taken to avoid unnecessary with discomfort behavioural stress or physical harm to the animals while crating and transporting.

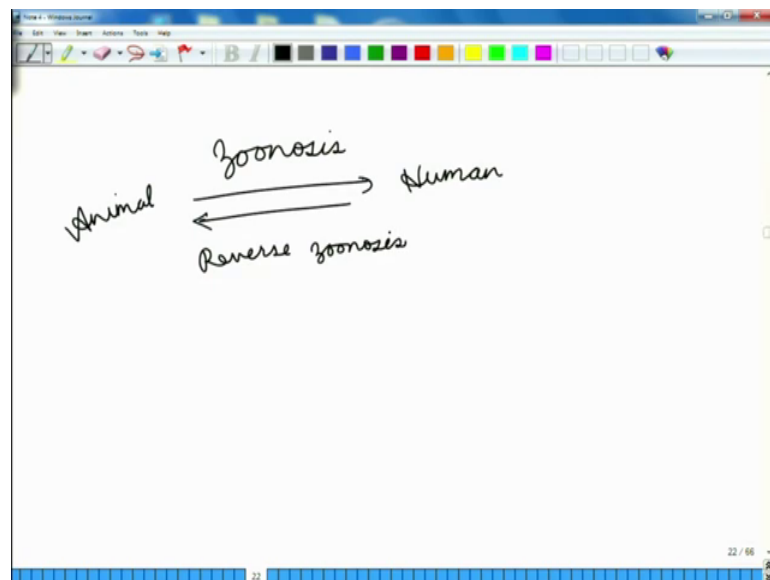
So, all these will come under the prevention of cruelty to the animals act. So, if you are not taking care of all these precautions then even of the people were transferred in the animals maybe put on trial. While transporting the animals due screening of the staff involved in transportation of animals should be made and it must be ensured.

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They are not infected of any diseases that can infect the animal. Now we saw on one of the yeah previous lectures in the case of diseases of animals that we have a thing that is known as zoonosis.

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Now, Zoonosis is the process in which a disease spread from an animal to human. Now in a number of situations we can also have a reverse thing.

So, a human may infect and animal and this is known as reverse zoonosis. So, whenever we are transporting the animals and also when we are keeping the animals in any facility

it is essential that we have regular health checkup for all of the staff species for diseases such as tuberculosis. So, tuberculosis is when disease that very easily spreads from animals to humans and also from humans to animals. Now the accompanied with an agent should carry all necessary drugs medicines first aid kits and. So, on arrangement for carrying water sprayer's, buckets additional ropes etcetera should also be made and tools for temporary repair of the cages may also be carried during transportation.

Now, this is important because as we saw emergencies can come up at anytime.

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Module 1: Introduction, Preparation, Tools  
Module 2: Monitoring wild animals  
Module 3: Monitoring & managing habitats  
Module 4: Management of wildlife diseases  
Module 5: Capturing and restraining wild animals  
Module 6: Conservation genetics  
Module 7: Ex-situ conservation  
Module 8: Management of zoos

Prerequisites  
Mechanical capture  
Chemical capture  
Capture methods  
Care of immobilised animal  
Legal aspects of capture and restraint  
Other topics in capture and restraint

### Transport of captive wild animals IX

27. It is preferred to cage only one animal in a single container, except in birds or mother with babies.
28. For longer distances, the possibility of air lifting should be explored. Lighter transport cages like fiber glass should be preferred for air journeys. The transportation cages should not be placed in closed wagon during transportation by rail.
29. The animals avoid feeding while transportation. It is advisable to properly feed the animals along with required supplement before crating and transportation.
30. There are various guidelines by IATA or CITES for transportation of animals by air. These should be kept in mind while transporting animals by air.

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And if your cage opens up somewhere in middle of the journey and if the animal escapes, then it not only becomes an extremely embarrassing situation for the department. But at the same time it might also result in a huge amount of risk to the animal and also to the human beings that are there and the surroundings. So, if there is any amount of opening that is seen or any amount of malfunctioning that is seen in these cages then we should be having the capability to repair it then and there. It is preferred to cage only one animal in a single container except in birds or mother with babies or these days in the case of herbivores to avoid captured mayopathy. Now for longer distances the possibility of air lifting should be explored and lighter fiberglass cages can be used. The animals about feeding while transportation it is advised to properly feed the animals along with required supplement before crating and transportation.

So, in that case we not only reduce the chances of having to feed the animals during that the transportation between also ensure that we do not get into any amount of emergencies.

Now, why are emergency is important here because once you have an animal in a capture facility and if it is eating or drinking and suppose it chokes. So, in the facility you have a number of veterinarian and you have all the equipment to save the animal, but while an animal is being transported.

So, it is getting sum amounts of bumps is well and during that period if this animal needs to feed and if it chokes then it becomes an emergency situation which is very difficult to be treated out in the field situations because we have seen before that all these crates are made to fit the animal.

So, there is not enough space for a veterinarian to get inside and also there is hardly any possible to of taking this animal outside of the crate because we are out there in the road. So, in these situations we always prefer not to feed the animals during the transport period.

So, it should be fed and given you enough amount of water. And maybe even some required supplements before being transported. Now there are previous guidelines where the international air transport agency and by the convention on international trade in an danger species of flora and fauna. So, I A T A and cites for transportation of animals by air these should be kept in mind while transporting animals by air especially when you are taking the animals into or out of the country.

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Module 1: Introduction, Importance, Threats  
Module 2: Monitoring wild animals  
Module 3: Monitoring & managing habitats  
Module 4: Management of wildlife disease  
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Mechanical capture  
Chemical capture  
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### Transport of captive wild animals X

31. The senior most personnel accompanying the animal should carry sufficient money and should have authority to spend the same to meet any unforeseen emergency during transportation.

32. Certificate from the concerned zoo consigning the transportation should accompany the animal and it should be mentioned that no taxes etc. should be paid and vehicle should not be detained. This will ensure smooth transportation without any hindrance, particularly in inter state check gates.

33. During transportation, if there is any emergent need for any assistance from any nearby zoo, the concerned zoo should provide all possible assistance. In case of transportation, it will be ideal to keep the way-side zoo informed in advance about such movement.

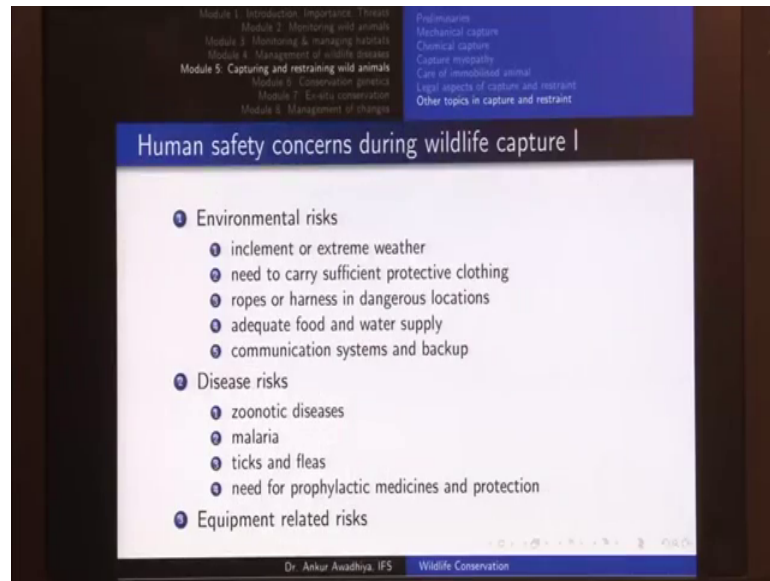
<sup>43</sup><http://cza.nic.in/g9.pdf>

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The senior most personal accompanying the animal should carry sufficient money and should have the authority to split the same to meet any unforeseen emergency during transportation. Certificate from the concerned zoo concerning the transportation should accompany the animal and should be mentioned that no taxes etcetera should be paid and vehicle should not be detained. This will ensure smooth transportation without hindrance particularly in interstate check gates.

And during transportation if there is any emergency need for any assistance from any nearby zoo the concerned zoo should provide all possible assistance. In case of transportation it will be ideal to keep the way side zoo informed in advance about in such movement. So, this is everything that has got to deal with planning operations. So, we saw about the traps and we saw about the cages, but then what about the human being that are involved in the operations. So, as we saw before our first priority is to ensure that all the human beings all of our personal are safe.

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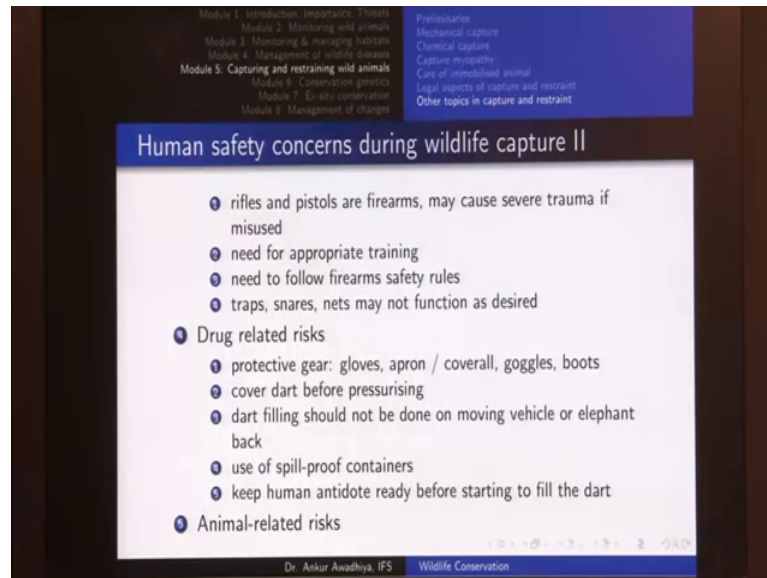


So, in that case there are some human safety considerations during the wildlife capture that should also be considered environmental risk increment or extreme weather. So, basically if you are out there in the forest and if it starts raining; if you are there in your house and its starts raining you can always carry an umbrella with you, but then when you are out there in the forest you do not have any option of coming back.

So, whenever you are working in the forest situations then it is always advised to carry sufficient protective clothing ropes or harness for dangerous locations especially the slippery locations and rocky locations adequate food and water supply because there are chances and which your vehicle might stop working it might malfunction out there in the field and you might be stuck. So, in that case it is always preferred to carry adequate dry food and also adequate amount of water and also a some water cleaning kit such as chlorine tablets.

Now, communication systems and backup because in case your communication system fails you should have a backup to call back then there are disease such as that are associated by you are working in the forest areas zoonotic diseases which are diseases that the animals transferred to you then things like malaria most of our forests are extremely infested with mosquitoes. And you also have ticks and fleas and there is a need for prophylactic medicines and protection for all of case. Then we have equipment related risk that needs to be countered.

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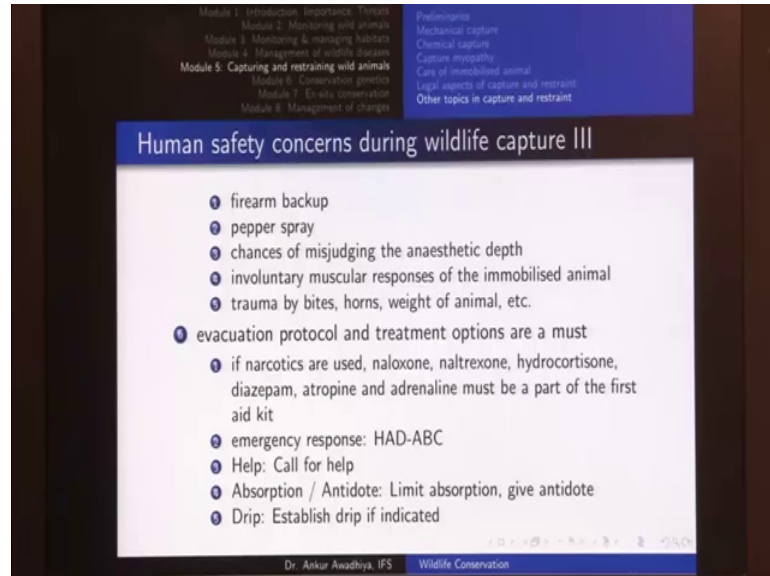
Including rifles and pistols they are firearms and may cause severe trauma if misused. So, as we saw before they come under the arms act, but at the same time it is important to note that apart from the legal aspects they can also give you a very great amount of harm if there misused.

So, there is a need for appropriate training need to follow firearms safety rules. And also traps snares nets may not function as desired and they may also become a rest to the human beings because if you are setting up a trap and if this trap just closes on your hands then you might even get some amount of fracture into your hands. Then drug related risk protective gear gloves apron coverall goggles in boots cover dart before pressurizing. So, as you saw in the lecture on filling up of a dart we use a cover that is made out of plastic to cover the dart. So, that whenever we are pressurising this dart the drugs are not able to come out. Dart filling should not be done on moving vehicle or elephant back you require a very steady surface use of spill proof containers. Once you have filled up your dart you need to keep those in a spill proof container.

So, that even if some drugs spills out it should not come into your hands. Keep human antidote ready before starting to fill the dart. Now this is (Refer Time: 31:41) important in the case of narcotic drugs. Now for drugs which is (Refer Time: 31:46) this always advise to keep their antidotes lekin eltroxin prepared before you are starting to fill the drug into the dart because if anything wrong happens you will have to inject the drug

into yourself immediately. When there are also animal related risk, why you are doing the capture of animals?

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So, animal related risk means that suppose you are out there to capture a deer species in the forest, but then there is a bear that is nearby and the bear attacks you. So, you need to keep some firearm backup.

So, and the first instance we do an aerial firing to shot that animal that does not work you may even have to fire on the animal. Then pepper spray essentially (Refer Time: 32:25) when you are working in the areas that have bears in there are chances of misjudging the anaesthetic depth. So, when this happens if you have darted in animal the animal has come down on the ground, but you are not extremely sure whether this animal is completely anaesthetized or not.

So, it is also possible that if you do not take adequate precaution. So, because there is a tiger that you have darted and this tiger is not completely unconscious. So, you go and approach this tiger and this tiger comes and attacks you such kinds of situations may also happened. So, in those situations you always judge the anaesthetic depth before we are proceeding tint to the tiger.

Now, this could be could be done by throwing some small pebbles to the tale of the tiger. And if does if it does not move it if it does not show any reactions then we can be sure



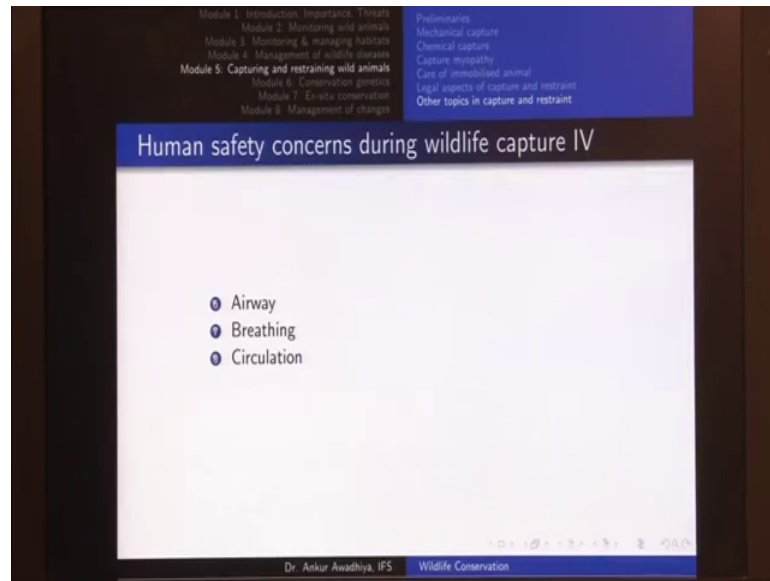
that this tiger is completely anaesthetized; then involuntary muscular responses of the immobilized animal.

So, this is especially important in the case of dissociative anesthetics. So, the animal is having delusions the animal is having hallucinations. So, it might not be doing something voluntarily, but then it might just be removing it shows like this. And if such a thing happens because the animals are very powerful we get it a fracture then trauma by bites horns and weight of the animal. So, these are the animal related risk then evacuation protocol and treatment options are immersed if narcotics are use naloxone or naltrexone hydrocortisone diazepam atropine and adrenaline must be a part of the first aid kit.

So, basically naloxone and naltrexone are the antidotes for are a narcotics hydrocortisone and adrenaline and atropine are used as drugs of the last resource. So, that we can immediately counter the impacts of the narcotics before the antidotes have started working and diazepam is anxiolytic that we need to be given and under certain situations if a person has stabbed himself or herself with the or print himself or herself with the dart or maybe if that and dart person has suffered some amount of trauma. So, this is required to calm the person now emergency response now what should you be doing in the case of emergency. So, this mnemonic helps had A B C had h stands for help call for help that is the first thing that you should be doing.

So, which is by your communication get centre backups are extremely important. A stand for absorption and antidote limit the absorption and give the antidote. So, basically if there is a person who was filling of a dart and if this drug came out and it fell on the clothes. So, this cloth will have to be removed immediately. So, that the amount of absorption of this drug into the skin is reduced. And at the same time if you as soon as you using any of the symptoms of these drugs that are happening because this drug came into contact with the skin then the antidote will have to be provided. So, this is the second thing that needs to be done third is drip establish a drip if indicated; so, which is why we also carry drips.

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When an after state crates whenever we are moving in the forest areas for immobilization. and then A B C check for airway breathing and circulation. So, this is something that we did even in the case of animals and these are the same thing that needs to be done in the case of any human injuries or any human emergencies also.

So, in this lecture we looked that at different considerations. So, while these are not directly connected to immobilization of animal. So, these are not related to the biology of biology of immobilization of working of the drugs of working of the trap, but then out then in the field these are the most important considerations that need to be kept in mind. Whenever you are trapping an animal you need to ensure trap, but this trap follows all the guidelines.

And also your animal is safe and you are safe. Similarly when you are transporting there are a number of consideration that need to be kept in mind. So, once you have immobilized your animal then you cannot think of what I should do next. So, all these come in prior planning also human emergencies can occur out there in the field when they have to be counter. So, that is all for today.

Thank you for attention.