AIDS TO SURVIVAL

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Safe Outback Travel

Adequate preparation before undertaking a journey or accepting employment in the outback will lessen the chance of jeopardising human life. There have been many cases where loss of life has resulted from a lack of foresight into the problems involved. The WA Police Service in it's mission to create a safer and more secure Western Australia provides a service which is responsive to community needs and is willing to act as a first point of call for safe outback travel. Members of the public are encouraged to discuss their trip plans and post notifications with local police.

PRIOR PREPARATION & PLANNING

There are a number of things to be considered before starting to pack for your trip, these are known colloquially as the 'Rule of P' and are linked to the premise that -

Prior Preparation and Planning Prevents Poor Performance.

Equipment Required

The equipment you are taking must be serviceable and sufficient for the trip. Allow additional equipment if in doubt. Maps should cover the entire area of the trip.

Radio Communications

For close range communication between vehicles a citizen band UHF or VHF radio may be used, however for long-range radio communication a HF radio is essential, these can be hired from communications suppliers at reasonable rates. Whilst travelling in the outback it is good practice to set up a communication schedule with the Royal Flying Doctor Service and contact them daily advising them who you are and where you are.

Satellite/Digital Telephone Communications

It is now possible to ensure telephone communications in the outback with the introduction of a system of digital telephones that allow the user to call on his/her digital phone and be connected automatically to a satellite system with no time delay if in an area not covered by a digital network. This system has a saturation system of satellites that download to ground stations and ensure instantaneous voice communication with no time delay between sending and receiving.

Terrain to be covered

A map study should be done to ascertain –

- Whether it is accessible by vehicle
- Where the fuel and water sources are located
- What is the best route
- What alternate route could you use if necessary
- What aids to navigation will you have
- What positions of evacuation are available
- Where are the local inhabitants

Use of Maps

The Western Australian bush is very monotonous with very few landmarks and a lack of signposts on outback roads. Be wary of spoken directions as they can be misinterpreted and the wrong track easily taken. In the absence of an official map, try to obtain a rough map drawn on paper with as many landmarks as possible indicated showing the necessary distances. Mark your position on the map as you proceed so you can pinpoint your location at any given time. Do confirm your position at every opportunity.

Weather Conditions

The weather must be considered as many road conditions vary according to the local rainfall. You should be aware of the changes of season in the area of your trip, this will ensure that you are going at the best time of year. Check with police or local authorities after rain as many outback roads can be closed.

Time allowance

You should consider carefully the time and space you are allowing for your trip.

Considerations should include -

- When are you leaving?
- How long will it take?
- Where do you propose stopping to camp?
- When will you arrive?
- Have you allowed a safety margin in case of minor mishaps?

Learn about the country

You should learn as much about the country you are to travel, as possible. This will assist you if you have to survive in it.

Things to study would be –

- Dangerous animals and reptiles
- Insects, flies and mosquitoes
- Prickle bushes and any poisonous or discomfiting plants
- Any edible wild foods and bush tucker
- Available water sources
- Caves, mine-workings, holes and local problems
- Diseases to guard against

Notifications

Before leaving on a journey through remote areas always notify friends, relatives, station owners or police of the following information –

1. Estimated time of departure [ETD]
2. Proposed and alternate routes
3. Estimated time of arrival [ETA]

Note:

Don't forget to notify those concerned once you have safely completed the journey.

VEHICLE SELECTION

Selection of a suitable vehicle for safe outback travel will rely on the load that you are going to carry. As well as major items of fuel, food and water you may also be carrying camping equipment, cooking gear, vehicle spares, tools, recovery equipment, an extra spare tyre and passengers. If you choose to travel 'off road' you will need to be sure your vehicle can withstand the harsh and rugged conditions you will encounter.

VEHICLE PREPARATION

Your vehicle will not only be your means of transport but if you are travelling 'off road' it will be your home and of course your biggest aid to survival should something unforeseen happen to you. As such it must be in first class mechanical condition.

If you are not a mechanic it is best to take the vehicle to one who specialises in this type of vehicle. Explain the nature of your trip and have them go over the vehicle from top to bottom. Short courses in vehicle maintenance are offered by most community, TAFE Colleges, etc.

Roof Racks

To carry the intended load you will probably need to install a roof rack. Buy only from a reputable manufacturer who specialises in your type of vehicle.

Under Body Protection Plates

These are considered necessary by some people for rocky creek crossings, etc. They can be a problem in spinifex country as after only a few kilometres' spinifex packs tightly under the plate and creates a definite fire hazard.

Roo and Scrub Bars

These are not essential items for off-road travel but they can be good value should you be unlucky enough to hit a kangaroo or other large animal.

Spinifex Protection

Some spinifex grows to a height of nearly 2m and the seeds can be drawn into the radiator. At least 3 layers of fibreglass wire netting should be placed over the front of the vehicle.

Fire Extinguishers

It is good planning to carry at least 5 litres of water in a plastic garden spray for spinifex and grass fires as well as an extinguisher suitable for electrical or fuel fires.

Tyres

It is important to discuss your tyres with your local tyre dealer before your trip. Ensure you have the right tyres for the task. Eight ply radials are recommended as a minimum for off-road use. Two spares plus an additional 2 tubes should be carried.

Wheel Rims

It is easier to change a tyre on a split rim than on a pressed safety rim or alloy rim so stick with the standard steel split rim if possible otherwise a specially designed bead-breaker should be carried for removing tyres from rims and replacing them.

Recovery Equipment

A valuable accessory for getting out of bogs is the exhaust jack. This is a blow-up heavy duty rubber/canvas bag which is placed under the vehicle and inflated by connecting it to the exhaust pipe with the engine running. Its purpose is to jack up the vehicle on any surface.

Winches

Types of winches range from hand, electric or power take off. If you have a winch fitted to your vehicle make sure you know how to use it. Some simple safety rules include -

- Always use a sling around an anchor point rather than forming a loop.
- Never place your hands within 1m of the drum if the winch is operating.
- Always leave six turns of cable on the drum.
- Run the engine when using an electric winch.
- Do not pull if the cable is more than 15º to either side.

Dual Battery Systems

When operating in the outback each battery should be used individually on a daily basis. When making camp for the night the appropriate drill should be used to ensure that the alternate battery is fully charged and will start the vehicle in the morning. The battery used for overnight use [refrigerator, etc.] may go flat.

Fuel

Long-range fuel tanks are an excellent idea but make sure yours is fitted in the approximate centre of the vehicle between the chassis rails. Use the rear tank first to equalise load. If you do not have a long-range tank then 20 litre jerry cans are an excellent method of carrying fuel. If you carry jerry cans make sure they are metal or designed to carry fuel and use tie wire on all caps to prevent spillage.

Water

Allow 4 to 5 litres of **drinking** water for each person per day while travelling. If you have a built in water tank fitted with an external tap it should be fitted with a tap guard and the tap itself lock-wired when moving.

Emergency Pack

Enough spare food, water and blankets should be included to allow for any unforeseen delays. Emergency rations should last at least three days on top of your planned trip. A three-day emergency pack for each person should consist of –

- 6 ready to eat meals
- 4 litres of water
- Emergency blanket

Vehicle Loading

The loading of the vehicle is critical and the vehicle's centre of gravity kept as low as possible always. Get in the habit of checking whenever you stop.

VEHICLE AWARENESS

The development of electronic [computer] engine management systems for modern diesel engines has forced a change in the way diesel 4WD owners operate their vehicles. The reservations a lot of people had with the development of computer engine management systems in petrol-powered 4WD vehicles in the early 90's were in most cases largely unfounded. What was required then and now with the modern diesel is driver education.

Gone are the days when all a diesel 4WD owner had to worry about with a water crossing was keeping the air intake out of the water. In effect these new generation 4WD diesels, because of the electronics, have to be treated like petrol-powered vehicles. Contact your local dealer or 4WD service centre and have them point out the location of the vulnerable points [electronic] under the bonnet of the vehicle.

Remember a clean engine is less likely to short out. To prevent condensation [a problem for any electrics] clean the engine bay when the engine is cold with low-pressure cold water.

Once these vulnerable or sensitive components are located suitable precautions can be taken. The location of the main computer is usually under the seats or behind the front left or right inside kick panels, near your feet.

A word of caution with these computer managed 4WD's for those who traditionally fit their own radios and other electrical accessories. Finding the nearest live wire or earth and connecting to it is fraught with danger. If the pick-up wire is part of the computer management hardware that carries signals and mixed voltages you could unknowingly cause expensive irreparable damage.

Note:

To prevent damage have any electrical accessories fitted by a professional.

Jump-starting is no longer a matter of connecting any set of jumper leads between vehicles. Your leads should have a surge protector fitted to prevent a possible voltage spike which will damage most computers.

Most 4WD vehicles with computer management systems will have an emergency limp home mode that comes into play when the engine management system has been adversely affected. Although the extent of operation will vary from vehicle to vehicle road speed will be limited and cruise control, traction control and other non-vital functions will be disabled. Visually, a dashboard-warning icon will be displayed telling you which system has been disabled.

The benefits gained from computer engine management systems for diesels such as more power, better fuel economy and lower fuel emissions should not be jeopardised by a driver's level of ability or lack of knowledge and understanding of the vehicles systems and components. As a new owner you should take the time to study the owners manual and consult with your dealer or 4WD service centre before you venture off road.

VEHICLE CHECK LIST

The following items should be checked at the end of each day. This procedure should be conducted as part of your everyday routine and should never be neglected.

1. Check engine drive belts
2. Check engine oil levels
3. Check coolant levels
4. Check fuel filter [if possible]
5. Clean air cleaner
6. Clean radiator fins
7. Check brake fluid levels
8. Check clutch fluid levels
9. Check power steering fluid level
10. Check engine for oil leaks
11. Check engine for coolant leaks
12. Check transmission for oil leaks
13. Check differential for oil leaks
14. Check all steering rods for wear and cracking
15. Check all joints for wear and cracking
16. Check all tyre pressures
17. Check all tyres for damage
18. Check battery levels
19. Check chassis rails for cracks
20. Tighten all mounting bolts, etc.

VEHICLE TOOL KITS

A comprehensive tool kit should be carried and should be suited specifically to your vehicle. Suggested items include -

Vehicle Tool Kit

Screwdriver, 200mm
Screwdriver, Phillips
Pliers, general purpose
Pliers, long nose
Spanner, adjustable 200mm
Tyre pressure gauge
Set metric spanners and sockets
Small hammer, hacksaw and blades
Spark plug socket *
Set of radiator and heater hoses
Tyre pump, hand or foot operated
Condenser and Coil *
Funnel
Can of aerosol de-wetting agent
Brake fluid, 500ml
Engine oil, 5L and Gear oil, 500ml
Trouble light
Araldite fixative
Bead-breaker & tyre re-fitting tool
Oil Filter
Insulating tape, roll
Alligator clips, electrical
Electrical wire, roll 3mm
Tyre levers and wheel brace
Wheel brace
Feeler gauges, set ∗
Fan belt and Power steering belt
Contact points* and Spark plugs*
Jumper leads
Grease, 500gms and Epoxy resin
Fuel filter
Masking tape
Rubber vulcanising tape
Plastic tubing, 8mm
Paint brush
Magnet
Electrical fuses, set

Note:

∗ Diesel vehicles do not require these items.

VEHICLE RECOVERY EQUIPMENT

If you travel in the outback "off road" at some stage you are going to encounter sand dunes, claypans, salt lakes and rocky creek beds. You are eventually going to become stuck and a complete vehicle recovery kit should be carried.

Vehicle Recovery Kit

Recovery equipment carry bag. Ground sheet. Leather gloves. Long handled and short handled shovels. Axe [medium size]. Winch [hand or fully fitted electric]. Snatch strap 9m based on 4WD size 8,000kg – 11,000kg – 15,000kg. Tree trunk protector 3m [12,000kg]. Recovery bridle. Drag chain 8mm diameter, 5m long [8,500kg]. Bow shackle 2.35T. Bow shackle 4.75T. Marlin spike. Snatch block. Centre pull recovery adaptor for fitting to tow bar. Vehicle jack with base plate [300x300 recessed marine ply]. Hi-lift jack [remember to fit jack lift points]. Air jack [Bull bag]. Air compressor.

OFF-ROAD DRIVING TIPS

Whether you intend travelling to the Pilbara, the Kimberly or out to the Bight the locations may be vastly different but the off road driving principles remain the same. Your trip can be safer and free from costly damage to your vehicle by following these driving tips -

- First of all find out the overhang distance of your vehicle. This is the distance from the front of your vehicle to the first point you see on the road in front of the vehicle. The point in front of the vehicle is calculated with you seated normally in the drivers seat. You will be surprised at how far this overhang distance extends to the front.
- As the road is constantly changing you must learn to search ground quickly and make decisions on wheel placement early.
- Lower your radio aerial to prevent damage or fit one with a spring base.
- Search the ground in a rectangular pattern looking from the front as far out as possible on the drivers-side wheel track and then back in towards the vehicle along the passenger-side wheel track.
- Identify and avoid any object that can damage the tyres or under-body components of the vehicle such as stumps, sharp rocks, or deep potholes. At times it may be better to drive a wheel over a large rock rather than have the vehicle straddle it. By doing this you raise the vehicle's differential ground clearance and you prevent possible under body damage by hitting rocks. Assist with this by learning the location of the front and rear differentials in relation to where you as the driver sit.
- Remember where applicable to lock your free wheeling hubs or central differential.
- It is a good idea to lower your tyre pressure to around 80% of your highway running pressure. This will give the tyres a little more flex and grip to mould over rocks and loose gravel rather than causing the wheels to spin and lose traction, which would occur if the tyres were left at the hard highway running pressure.
- When driving in soft or sandy conditions the lowering of tyre pressures can prevent bogging. Tyres can be lowered to a minimum pressure of 16psi in both split and safety rims. Tyres must be re-inflated immediately after traversing the obstacle, failure to do so will lead to tyre damage.
- Where you are going up or down a steep hill always engage low range on the transfer case. For those vehicles that don't have a low range capability be very careful to assess the terrain so that you may safely negotiate it.
- For those auto transmission 4WD vehicles select low range and lock the gear lever in low gear whenever descending a steep off-road track.
- Drivers of manual 4WD vehicles should remember that depressing or riding the clutch off-road is fraught with danger.
- If you stall or stop the vehicle on a descent you can restart in low range with the vehicle in gear. Simply turn the key on and do not depress the clutch. Cover the brake pedal and be ready to apply brake pressure if the vehicle surges forward [common with fuel-injected vehicles]. This ensures you are under control at all times with the engine running and gears engaged. Don't ride the brakes but feather them as required to slow the rate of descent.

OUTBACK TRAVEL CODE OF ETHICS

Outback travellers should consider themselves caretakers of the land and ensure that their actions do not add to the degradation of the landscape.

- Do make sure your vehicle is in sound mechanical condition and equipped with all necessary fuel, food, water and spares needed to complete the journey.
- Do have the ability to communicate with the outside world either by radio, satellite phone or global positioning system e-mail.
- Do tell someone of your intentions. Notification of your time of departure, intended route, campsites and estimated time of arrival at your destination may be posted at local police stations.
- Do camp in designated campsites or in natural clearings if none are available.
- Do observe fire restrictions, clear around fire areas and extinguish all fires.
- Don't break or cut live branches from trees and shrubs for fires or campsites.
- Don't leave garbage in the bush. Carry garbage bags with you and remove your waste.
- Do stay on existing tracks and endeavour not to create new tracks or short cuts.
- Do clear fallen trees or logs if possible rather than driving around them.
- Don't camp near stock troughs or in water catchments.
- Do carry maps, information on terrain, track and weather conditions, navigation equipment and set escape routes.
- Don't travel off-road at night. If you must travel at night use only 50% of the speed you would use during the day and do not attempt rocky ground, mud patches or deep water crossings.
- Do know your vehicle controls so you know where they are in an emergency.
- Do know the length and width of your vehicle for negotiating difficult terrain.
- Don't infringe on the privacy of aboriginal people or any settlement and be aware that permission must be obtained to cross aboriginal reserves and communities.
- Don't carry firearms on pastoral leases without permission from the lessees.
- Travellers from outside Western Australia must obtain a temporary firearms permit from the nearest Police Station on entering the state.

Outback Survival

Survival is best defined as simply staying alive. Generally speaking survival in the outback is a day-to-day proposition. Each day can be broken into two parts, ensuring that once the sun rises your efforts are directed to staying alive to see it set and vice versa once the sun sets to see it rise.

The first rule of survival
The first rule of survival is 'don't panic'. You must take stock of your situation.

The survival mnemonic
The survival mnemonic will assist you to avoid immediate panic.

S Size up the situation.

U Undue haste makes waste.

R Remember where you are.

V Vanquish fear and panic.

I Improvise.

V Value living.

A Act like the locals.

L Lean on your basic skills.

BASIC REQUIREMENTS FOR SURVIVAL

You will need four basic requirements to survive, they are -

1. Water
2. Shelter
3. Warmth
4. Food

In general the priorities will be as listed, however, in some situations you may alter them to suit, for instance in the arid zone shelter may become number one priority if sufficient water is available. If you have taken the precaution of notifying someone of where you are going and how long you intend to stay a search will no doubt be conducted to look for you if you are overdue. Your task will be to use the knowledge and skills you have to provide the four basic requirements to stay alive until found.

Note:

Prior planning and preparation prevents poor performance.

ACTIONS BY SURVIVORS

While a survival situation will be a traumatic experience for most people the effect it will have will depend on circumstances. For instance a person suffering a vehicle breakdown in spring in the southwest region of Western Australia will have a different reaction to a person who suffers a similar breakdown in mid-summer in the Great Sandy Desert.

Stress and Survivors

Stress is defined simply as reaction to pressure.

Stressors

Events that cause stress are known as stressors, the most important stressors affecting survival include heat, cold, thirst, hunger, fatigue, boredom, loneliness, fear and pain.

Reactions To Stress

There are natural reactions to stress that need to be recognised, expected and for which strategic interventions need to be implemented. These include fear, anxiety, anger, frustration and depression. Do not over-react and remember that too much stress leads to 'distress' resulting in anti-social behaviour, angry outbursts, difficulty making decisions, unwillingness to accept responsibility, an inability to get on with others and eventual withdrawal from the group.

Initial Critical Reactions

Recognise that you are in a survival situation and don't be afraid to make an honest appraisal of the situation. Get your thoughts on track by employing the survival mnemonic and recognise any survival stressors that are present. Overcome any attitude assumptions [S*he'll be right. It will never happen to me. If anything does happen my instinct, faith and inner strength will get me through*] and adopt a positive attitude. Your life and the lives of others who are relying on you to do your share are at stake. Remember that your physical strength and emotional resources are at their strongest in the first three days of survival.

Questions You Should Ask Yourself In A Survival Situation

You should stay focussed on the basic requirements for survival and ask yourself –

- How much water do I have and how will I procure more?
- What shelter from the elements will I need?
- What is the temperature range and will I need a fire for warmth?
- How much food do I have and what food is available?

Survival Situation Appreciations

An appreciation is a logical process of reasoning, the object of which is to determine from factors both known or assumed, the best course of action to take in any given situation. The six elements to a survival situation appreciation are -

1. Review the situation.
2. Determine your aim.
3. List the factors affecting your survival.
4. Identify all courses open to you.
5. Select the best course of action.
6. Make a plan.

SURVIVAL PLANS

The Survival Plan is the final process by which you or the group have chosen to stay alive. It is the final result of your appreciation and should be based on the facts at hand that have been subject to thorough and systematic thought and/or discussion. It needs to be prepared in a systematic way and re-examined regularly. It must be accurate, brief but clear, contain all necessary information and most importantly be capable of being carried out.

Layout of survival plans

Plans need to follow a logical sequence to ensure all aspects are covered. The five headings covered by the plan should include –

S Situation
M Mission
E Execution
A Administration & Logistics
C Command & Communications

SITUATION [brief description of what has happened]

This is a brief description of factors known and assumed from what has happened and should include the following details -

Human resources

What skills are available within the group? Does anyone have any survival knowledge? Is there anybody in the group with professional or specific capabilities? Does anyone have any disabilities or limiting health conditions?

Water

What water do you have? Is it likely to rain? Is there any water available in the area? What equipment do you have for storing water, carrying water and water procurement?

Shelter

What prevailing conditions do you need to shelter from? What can be improvised to provide shelter? What items do you have that can be used to build shelters?

Warmth

Do you have matches or a cigarette lighter? Can you identify any alternative methods of lighting fires? Can you gather enough fuel to sustain warmth for a period of days?

Food

What food do you have? Is there any food available in the area? What equipment do you have for hunting, gathering and storing food?

Location

What is your present general location?

Direction

Can you indicate north, south, east and west?

Rescue

How do you expect to be rescued? What direction do you expect rescue to come from? How will you signal rescuers? What is available to build rescue signals?

Equipment

What equipment do you have and what can be improvised?

MISSION [overall objective of what you hope to achieve]
A clear, concise single purpose statement of the overall outcome to be achieved. In all survival situations the mission statement is - *To Stay Alive*.

EXECUTION [what you are going to do in order to achieve the mission]
Should contain details of your best course of action and how the mission will be accomplished. It must include a general outline together with details of roles, tasks, methods, boundaries and special equipment. If possible people in a survival situation should remain with their vehicle or aircraft and if on foot establish a camp as soon as practicable. If in a group task leaders should be elected and teams nominated for each of the following requirements -

Water
Develop a control and distribution plan for any available water and discuss and implement water procurement strategies and methods to be used.

Shelter
Conduct an audit of useable items available; nominate a shelter-building team to determine the type of shelter or shelters required and methods of construction.

Warmth
Identify ways of staying warm and develop strategies and procedures to cope. Nominate a team responsible for gathering fuel, identifying any available accelerants and identify suitable fire lighting methods.

Food
Develop a control and rationing plan of available food and discuss and implement food procurement strategies and methods.

Direction
Locate north and construct an earth compass.

Location
Locate your position relative to identifiable landmarks and easily recognisable features and set boundaries for movement outside the camp area.

Rescue Signals
If in a group elect a task leader, develop rescue strategies, build and maintain rescue signals and implement the 24 hour manning of fires and emergency signals.

Co-ordinating Instructions
Details common to all members of the group providing a standard by which elected leaders can maintain control and group members maintain focus. They include details of timings, movement, navigation and actions-on for injuries, lost persons and death[s].

ADMINISTRATION & LOGISTICS [what is needed and what is available]
Details of food and water available along with distribution and consumption arrangements. Dress standards and equipment requirements should be detailed.

COMMAND & COMMUNICATIONS [who is in charge and details of signalling]
If in a group the elected group leader and those in charge of the various tasks must be known and agreed to by all. The agenda for group meetings should be set along with timings for task completion. Those responsible for manning emergency signals and fires should be nominated.

PERSONAL SURVIVAL KIT

This personal survival kit has been designed to assist in providing the four basic requirements for survival. Your kit should fit on your belt and be carried with you at all times especially when away from your base camp or vehicle. Belts should be nylon with quick-release buckles and be as long as practicable.

Survival Equipment

- Survival belt - Can be used for first-aid slings, carrying items and securing shelters.
- Water bottle - Minimum capacity 1 litre filled with drinking water.
- Survival knife – A general-purpose knife with a 15cm blade suitable for cutting, slicing, skinning, hacking, chopping, digging and hammering is recommended. A lock-back folder with an 8cm blade is a good lightweight alternative.
- Survival tool – Multi-tool with pliers, wire cutters, crimpers, knife blades, ruler, can opener, bottle opener, small/medium/large screwdrivers, Phillips head screwdriver, metal file, wood saw and awl is recommended.

Survival Kit

- Plastic bags - Ground sheet, raincoat, shelters, carry bags and water collection.
- Foil rescue blanket - Shelter, warmth, water collection and signalling aid
- Nylon cord - Shelter building, weapons, traps and snares.
- Fishing gear – Fishing, traps and snares.
- Scalpel blade – Cutting and slicing.
- Elastic rubber tubing – Slingshot, gidgee, drinking straw, traps and snares
- Canvas tape - First aid, shelter building and repairs to gear.
- Netting - Fishing, traps and snares, carry bag.
- Signalling mirror - Signalling aid.
- Waterproof matches - Firelighting and signalling.
- Water purifying tablets - Water purification.
- Barley sugar - Energy food source.
- Notepaper and pencil – Keep diary, record plan and write messages.

VEHICLE/AIRCRAFT EMERGENCY PACK

This emergency pack is designed to provide each person with the basic requirements for survival for the three-day period following a vehicle breakdown or air emergency. There should be one pack carried for each person. It should be carried in your vehicle or aircraft at all times and be easy to access in the event of an emergency.

Emergency Pack [per person]

- Water bottles rigid or collapsible - Complete with 4 litres of drinking water.
- Foil rescue blanket - Shelter, warmth, water collection and signalling aid.
- Food - 6 ready-to-eat meals in cans [or other].

Water

THE IMPORTANCE OF WATER TO SURVIVAL

In Western Australia people do die after becoming lost or having their vehicle break down in the remote and arid areas of the state. During the period from 1983 to 1999 forty-three people have perished due to excessive heat, thirst and exposure. Many of these deaths occurred because the individuals did not carry out good survival techniques.

The average person can expect to survive without water for three to five days [depending on the climate and what they try to do]. Some instances show individuals have perished within hours of becoming lost.

You must conserve any water you have, including that already in your body. Water is required to replace fluid that is lost, so by conserving body fluid you require less water intake.

Time frame for survival

There have been cases where, in an ambient temperature of 38ºC survivors have stayed in the shade and followed good survival principles and survived for the following periods when in possession of the nominated amount of water. The table below is included to highlight the importance your actions may have on your time frame for survival.

No water	1 litre	2 litres	5 litres	11 litres
3-5 days	5½ days	6 days	7 days	9 days

How fluid is lost from the body

Fluid is lost from the body by perspiring, breathing, urinating, vomiting, crying and talking.

Perspiring

Perspiration is a mixture of salt and water with the amount of salt varying from person to person. It is a normal bodily process that has a cooling effect as moisture evaporates from the skin surface. A person resting in the shade when the temperature is 35ºC would lose about 2 litres of fluid in a 24-hour period. It is important to keep activity down to a minimum and conserve existing body fluids as any rise in body temperature can see losses in excess of 1 litre of fluid per hour resulting in dehydration.

Urinating

Is also a normal bodily process and cannot be prevented. However, it should be held as long as possible to slow down this fluid loss from the body. On no account drink urine unless it has been distilled. You could apply it to the skin surface with a sponge, in the hope that it will reduce your body temperature.

Vomiting

Can generally be avoided by leaving bad or harmful food well alone.

Crying

Should also be avoided, but it may be difficult to convince a child of this.

When to consume water in a survival situation

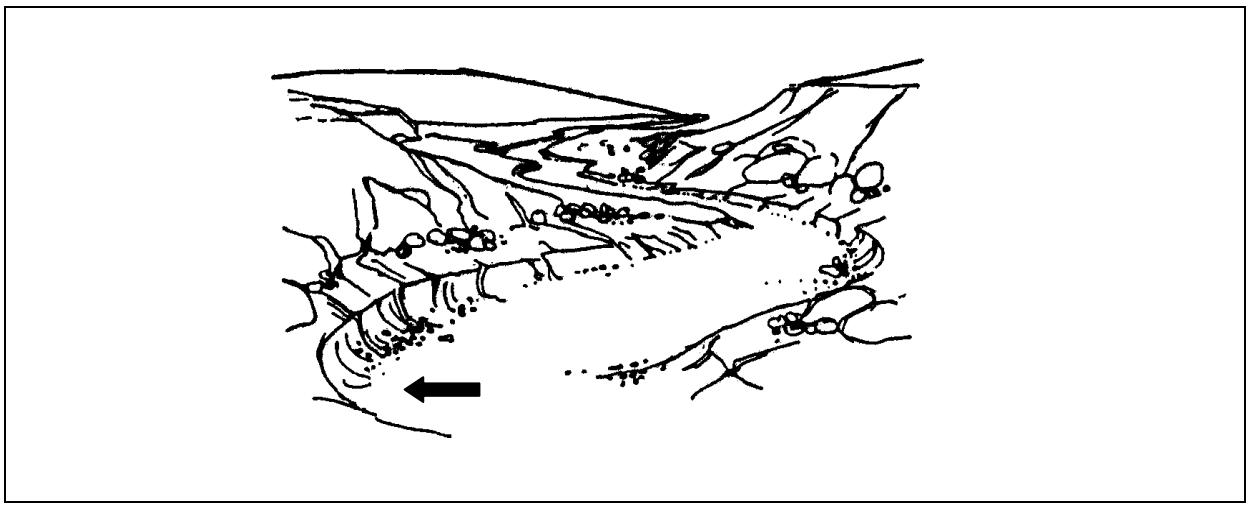
You should always drink to replace fluids lost from your body however if you are unable to locate or procure water and are limited to the water in your survival kit it should be consumed in small sips to replace some of the fluid lost to your system. This water will increase your time frame for survival by up to half a day.

METHODS OF WATER PROCUREMENT

Your first efforts in a survival situation should be directed towards establishing a good water supply. Initially you should look for ground water using the following methods.

Creek beds

Are easily discernible in dry areas because of the relatively green vegetation and taller trees following the course of the creek. Unless there has been recent rain in the area the creek bed will probably be quite dry. You may be lucky enough to locate damp sand or mud at the bends of the creek or by digging in the creek bed at a likely spot. Water can be extracted from the damp sand or mud by soaking a rag in soil and wringing out the water into a container.



Where to dig in creek beds for water

Rock Formations

If there is any water seepage from the ground, it is usually to be found near rock formations, where the country is rugged and undulating. It may also be found in some apparently dry areas. Rocky areas are ideal for rain catchments. Rain soaks very quickly into the soil, whereas it can lie in pools on a rocky surface for some time.

Salt Lakes

After rain has fallen, the top 3mm of a salt lake is fresh water. It can be siphoned off by using a grass straw or tubing from your survival kit.

Windmills

These have been erected on most farms and stations throughout the state at such locations as wells, dams and soaks. These can be seen from a long distance and usually have animal tracks leading to them. Check the water at these mills has not gone salty.

Animal Trails

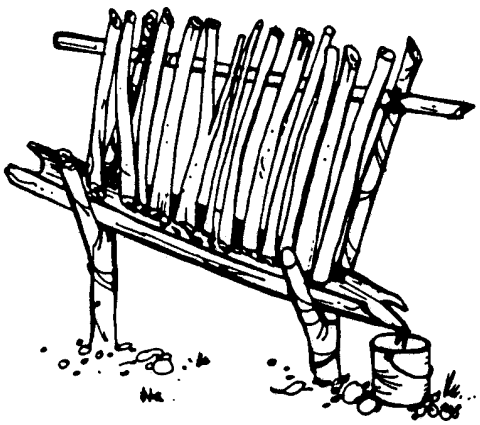
Animals need water the same as humans and they will travel great distances regularly each day, leaving trails to the water source. Where a large number of trails converge together, it would indicate that the water was not far distant.

Water seepage

Sometimes water can be found close to the surface in natural springs and soaks or at the base of cliffs and rock-piles where vegetation appears to be thriving.

Tree Roots

In the early morning before the heat of the day, the roots from trees such as the boab, kurrajong, wattle and some gums can be cut into short lengths, stood end-on with their thickest ends down in a container allowing the fluid to drain. It is best to use roots that are easily obtained with a minimum of effort. The ideal location for this is in creek beds and washouts where parts of the roots are already exposed or near the surface.



Draining water from tree roots

Certain Trees

Some trees such as the boab, desert-oak, she-oak and paperbark store water. Water will collect in the crevices of some of these trees after rain, in blisters under the bark in others such as the paperbark and in the sapwood under the bark of the boab.

It is preferable to use a length of rubber tubing to siphon water from crevices and to extract the water from blisters and under bark by cutting a 'V' through the bark and collecting the escaping water in a container.

Note:

Chewing the sapwood of trees is not recommended as it may aggravate thirst.

Coastal Water Sources

You can obtain drinking water by digging high up on the beach above the tidemark or behind the first sand hills. It tastes brackish and should only be used in small quantities.

Dew

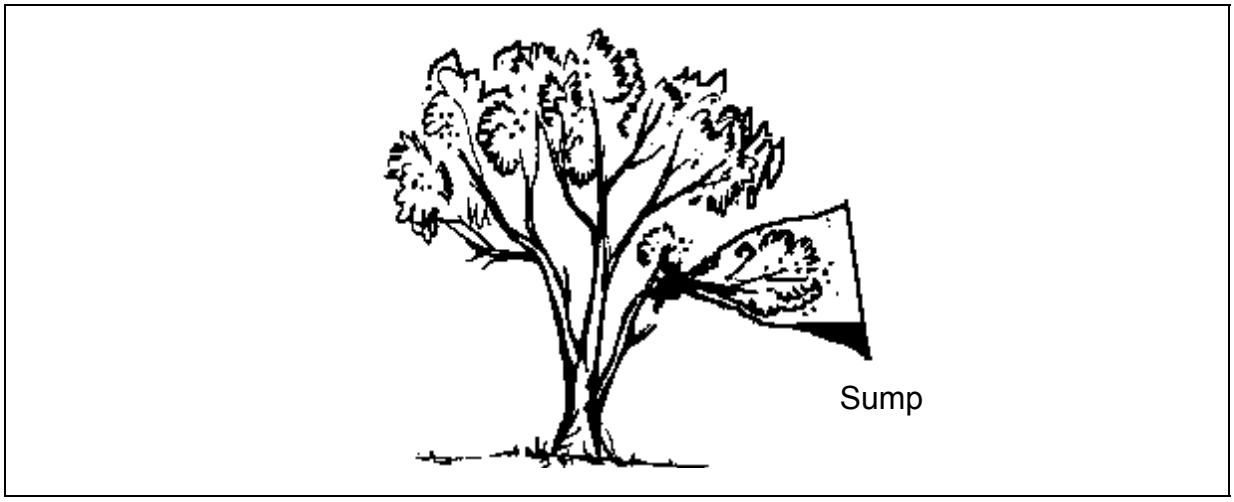
The collection is tedious, but of some value in heavy grassland. Tie clumps of grass or cloth around ankles and walk around in dew-drenched grass at dusk or dawn. Squeeze moisture into a container and repeat. If you have a vehicle, wipe down the vehicle with a cloth and collect the dew in a container. You can also dig 'dew holes' and line them with plastic to collect the dew.

Foliage Bags

If there are no large trees in the area you can break up clumps of grass or small bushes and place them inside the bag, the same effect will take place as in transpiration. Make sure you follow the guidelines and provide a sump and remember to replace the foliage at regular intervals when water production is reduced.

Transpiration Method

Water can be obtained by placing a clear plastic bag over the leafy branch of a non-poisonous tree [taste-test the foliage] and securing the bag with tape at the end of the branch. Seal any holes with tape, band-aids, etc. The action of the sun on the plastic will cause water to be drawn from the leaves and run to the lowest part of the bag. Do not disturb the bag to collect the water, simply cut a small hole in the bag then reseal it. The leaves will continue to produce water as the roots draw it from the ground.



The transpiration method

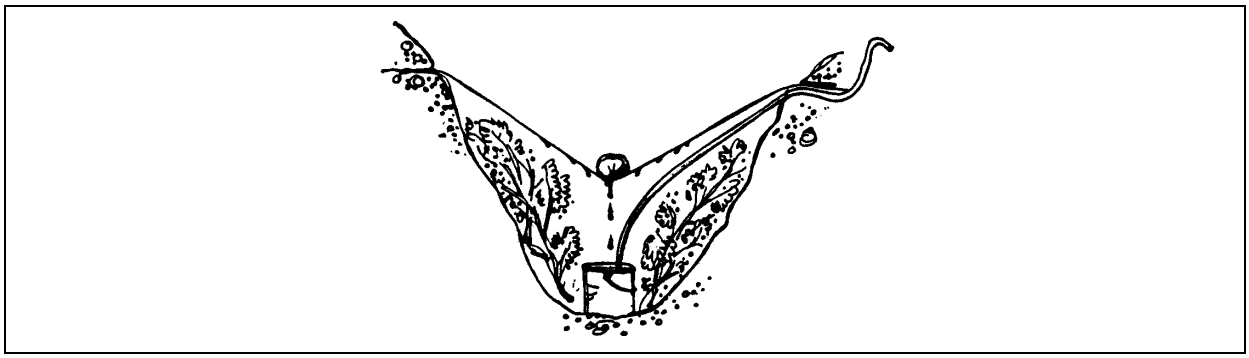
The water should be drained off every two hours and stored. Tests indicate that if this is not done the leaves stop producing water. Probably the heavy concentration of moisture-laden air reduces the effectiveness of the sun. Ensure these bags receive maximum sunshine at all times. Exposed roots can be tested for water content prior to bagging the tree. Soft pulpy roots will yield the greatest amount of liquid for less effort.

Note:

A piece of cord can be tied around the bottom of the bag to form a sump and will stop sticks, leaves and insects from contaminating the water or blocking the tapping hole. It will also stop alkalines leaching from the foliage into the sump.

The Desert Still

Dig a hole approximately 1m x 1m x 60cm deep, line the hole with non-poisonous vegetation and place a container in the centre with a piece of rubber tubing leading from the container out of the hole for use as a drinking straw. Cover the hole with a clear plastic sheet and seal around the edges with soil from the hole. The plastic sheet should be weighted with a stone placed in the centre so it forms an inverted cone to allow condensed water to run into the centre on the underside of the plastic and drip into the container.



The Desert Still

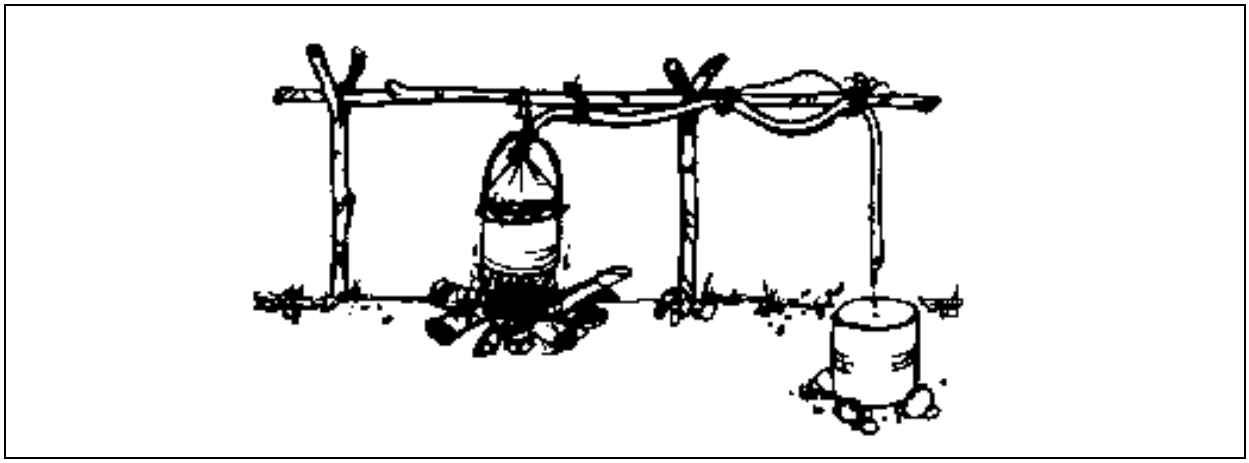
The desert still method will work without the drinking straw, however to collect the water the edges of the plastic must be lifted allowing moisture-laden air to escape. The foliage will need to be replaced when water production falls off. Care should be taken that the plastic sheet does not touch the foliage as this will prevent the condensed water from running into the container. Additional fluid such as salt water from salt lakes, urine, etc. can be added to the hole.

Note:

This method while efficient has the disadvantage of requiring a lot of effort and subsequent loss of fluid from the body through perspiration and therefore is not recommended in areas where the transpiration bag can be used.

Distilling Sea Water

If only salt water is available a distilling plant can be made. You will have to improvise and use containers that can be found or that you may have. First you require a container of seawater and material to seal the container to prevent steam from escaping. Push one end of the tubing or rubber hose through this seal material and check to see that the seal remains intact while blowing into the loose end of the tubing. Place the container onto a fire and bring to the boil. Steam will be forced through the tube where it condenses and fresh water will drip from the end, into another container.



The condensation method of distilling water

Another method is to simply bring water to the boil and catch as much steam as possible on a piece of cloth and then ring it out. Although this method works, it is not the most efficient.

You must remember that the steam is the fresh water and therefore you must trap the steam to get fresh water. Any improvised method will do even if you place an open container on the fire and bring it to the boil, and then arrange a small plastic ‘tent’ on top of it. The steam will strike the tent, condense and run down to your container or containers.

Note:

Alfoil or similar would make a seal around the container by folding it into a cone shape with the tubing attached to the small end of the cone and placing the large end around the container, secure ends of cone with wire to make the seal. Run the tubing through a cooling agent [water].

WATER PURIFICATION

You must always ensure that the water you drink will not cause internal infection as this will lead to further loss of fluid. You must purify any natural water that you drink by using a water filtration device, adding sterilization tablets or by boiling it.

Note:

Salt water should never be drunk unless distilled.

Clarification of water

The water you drink should be as clear as possible. It can be left for twelve hours to settle or strained to remove the suspended matter. A good method of doing this is to make an improvised filter from the leg of a pair of trousers or a shirtsleeve. Into this place fine sand up to one third the length of the filter, charcoal for the next third and fill to the top with gravel, small stones, etc. Hang the filter in a tree or similar and pour in the muddy water. It will take a little time but clarified water will begin to seep through the filter and drip into a container placed underneath.

Sterilisation of water

Because the water is clear does not mean that it has no bacteria in it. To make sure of this you must sterilise any natural water that you drink. To sterilise water you can use several methods; the recommended method is to put in sterilisation tablets from your survival kit. The alternatives would be to boil the water or to use other chemicals that will neutralise any bacteria such as condies crystals or iodine from your first-aid kit.

Portable Water Filters

These are designed for the world's diverse water conditions and usually combine a ceramic filter with activated carbon granules. Worldwide studies have shown, that bacteria accumulates in every activated carbon filter, which is why manufactures now put the ceramic filter after the carbon filter thus eliminating not only micro-organisms such as Giardia, Cryptosporidium, Salmonella, E-Coli and Cholera, but also chemicals such as chlorine and pesticides. Most units do not de-salinate salt water, you should check this with your supplier when purchasing.

To operate the unit, the intake hose is suspended in the untreated water. The filter is held vertically and pumped until purified water begins to flow from the outlet. As bacteria and particles of dirt become trapped on the surface of the ceramic filter pumping will require greater effort. The filter should then be cleaned and not forced.

Shelter

Extremes of heat and cold are the enemies of human survival and both these qualities are found in inland arid regions where very hot days can be followed by cold nights. During the period from 1983 to 1999 fifteen people died due to excessive heat and thirteen due to excessive cold in Western Australia.

A shelter will provide you with protection from the elements, insects and animals. It is also a big psychological boost that will help you feel that you are managing. Determine what type of shelter you require and plan accordingly.

While building your shelter remember that keeping in the shade and moving as little as possible in the heat of the day can avoid heat stroke and loss of body fluid.

Using Vehicles as Shelter

Vehicles are a source of shelter as they provide protection from the sun, rain and prevailing weather during the day and the cold air at night. Tarpaulins, blankets or branches can be used to keep direct sun from the vehicle and interior linings, doors, boot lids and bonnets can also be removed.

Foil Rescue Blanket

Space and/or rescue blankets are cheap, lightweight and an ideal item to assist in providing shelter. The reflective surface reflects the sun's rays from the person sheltering underneath.

Natural Shelter

If nothing else is to hand you will have to use bush materials, when constructing a shelter you should consider the following points –

- Type of protection required.
- Availability of materials.
- Proximity of water.
- Close to your emergency signals.

When you begin construction, use larger branches for your basic frame as you will find a roof fairly heavy when it is wet and they will have to support it. Branches can be tied together using vines, strips of bark or sword grass. If you are near your vehicle, strip out wires to use for this.

Remember that your ability to improvise and see alternate uses for items that you may have available to you could mean the difference between life and death.

TYPES OF SHELTERS

Any survival situation will involve the construction of some form of shelter from the elements.

The need for shelter and the type of shelter should be identified in your survival situation appreciation. It is important that you base any decision to build a shelter on your survival plan.

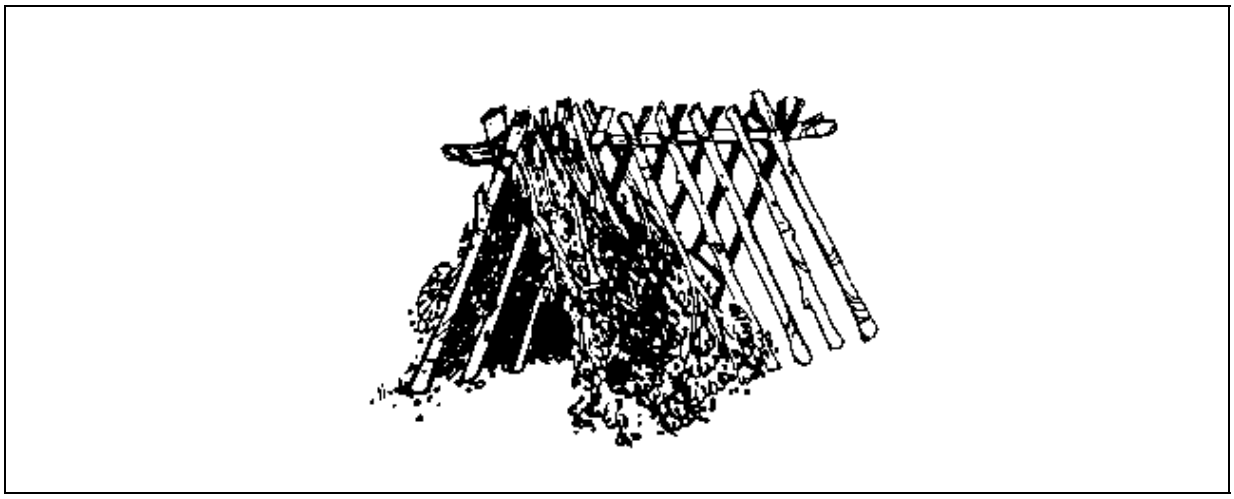
Note:

Be careful not to use items from your survival kit, which might have a higher priority of use.

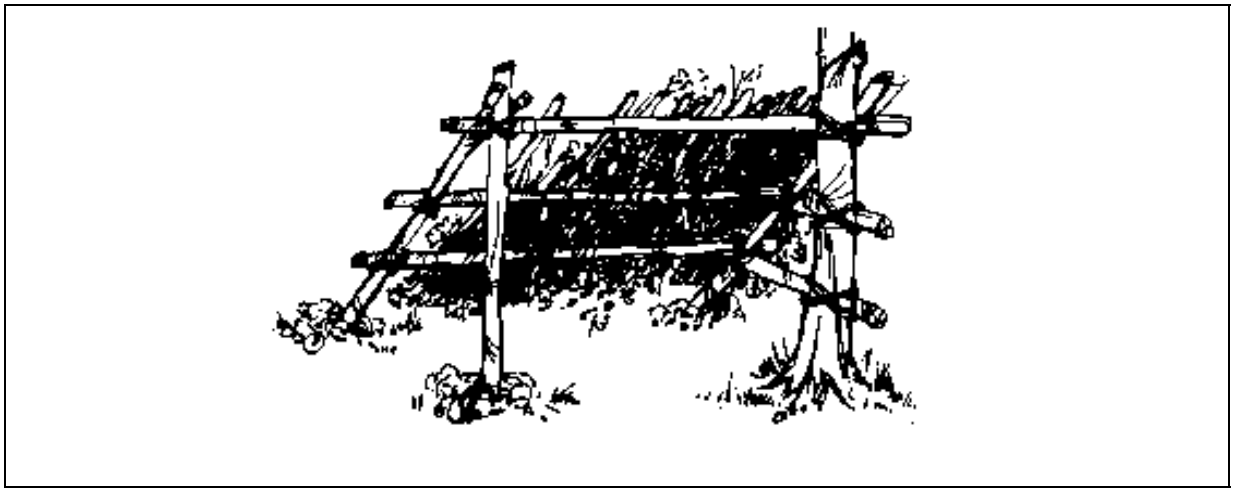
Building shelters

Your shelter will depend largely on what is available to use and what the conditions are. Common sense will guide you but be warned, a shelter takes a good deal longer to build than one imagines. If you can find something that will provide a part of a shelter such as a hollow log, then use it as the basis of your shelter, this will save time and energy.

Some fairly simple types of shelter, which you can build, with a minimum of effort include the following -



The A-frame shelter



The lean-to shelter

The aboriginal shelter

Using a tarpaulin for shelter

A tarpaulin can be a valuable aid to providing shelter from the elements as there is no limit to the uses it can be put to. Remember that tarpaulins today are fairly lightweight and may be dropped to you by rescue aircraft.

In hot conditions it can be used solely as a base to protect from radiated ground heat when used in conjunction with any shelter designed to provide shade. Tarpaulins can also be used in hot conditions to provide deep-shade as the roof of a large A-frame shelter.

In wet, windy conditions they can be used to provide shelter using one end as a base and then using the remainder of the tarpaulin to provide an outer skin for waterproofing or simply using as a large A-frame with the edges pegged down or held in place using rocks or logs.

Note:

Tarpaulins need not be used on their own as shelter but can be utilised to supply additions and improvisations to other forms of shelter that you may decide to build.

Roofing

If your vehicle is handy, you can pull out the head lining to use to make a waterproof roof. If not, then blankets, sleeping bags or even spare clothes can be used.

Thatching

Waterproofing and shade can be provided using a technique called thatching. This can be done by using materials such as palm fronds, leafy branches, tufts of long grass, reeds, sedges and/or long stalked ferns. A good method to employ is called “tuft thatching” using long, pliable tufts of grass, reeds or sedges. These are better used when dry or partly dry as they will not shrink and fall apart in windy conditions. To make a “tuft thatch” –

1. Gather the material into small sheaves or handfuls.
2. Bend the end of each sheaf over a batten or long stick.
3. Twist a few strands of the material around the sheaf a few times and push it through the bunched up material to hold the sheaf together.
4. Completed “tufts” are then slid along the batten to make a neat thatch.
5. Each completed batten is then lashed to the frame to provide a wall or roof as required when used to overlap completed battens.

Use Of Debris

Once you have constructed the skeletal structure for your shelter in cold or wet weather you should consider the use of debris for protection and insulation. Over the framework heap a pile of light, soft debris. Leaves, grasses, brush, or any type of leaf litter will do.

The debris should eventually form a large dome shaped mound some 60cm thick over the structure. Remember the thicker the pile the better the insulation and the steeper the pitch the better the rain protection. On top of the debris add some bark slabs or moss to form a protective waterproof layer and to assist in keeping it together.

Low debris shelters built using this method are sometimes called “oven shelters”.

Warmth

In Western Australia in the period from 1983 to 1999, thirteen people died due to excessive cold. Many of these deaths could have been prevented had the individuals possessed the resources and skills to light a fire.

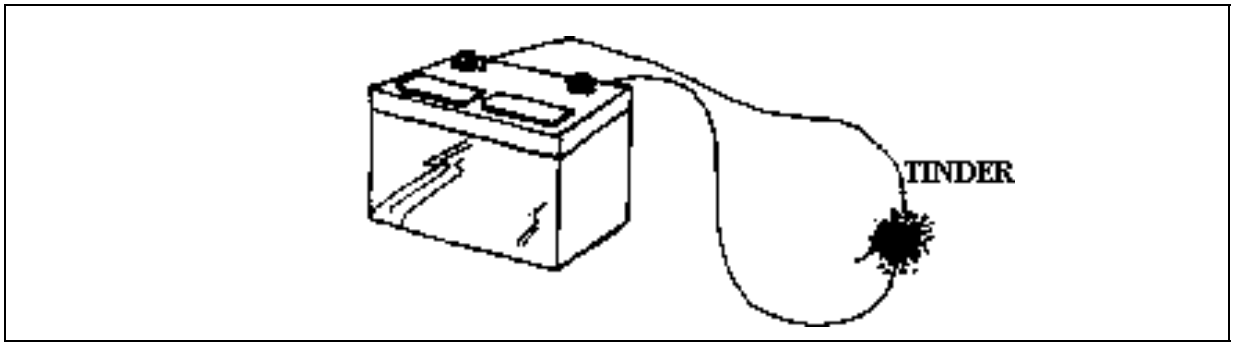
FIRELIGHTING WITHOUT MATCHES

Fire cooks, warms, sterilises and acts as a signal if necessary. To start a fire requires an understanding of combustion. For combustion to occur requires the presence of fuel, heat and oxygen. Fuel consists of dry vegetable matter, dry animal manure, reactive chemicals, kindling and timber. Heat can be provided by friction, chemical reaction, spark or magnification. Remember that oxygen is the essential ingredient to produce flame from heat and fuel.

Always carry some form of fire starter with you on trips such as waterproof matches or lighter. If you do not have these then your skills should include at least one of the following methods. Remember that traditional methods of fire lighting require a high degree of patience and skill and should be learned and practised in a training environment.

Vehicle Method

Your vehicle has probably been fitted with a cigarette lighter. Use this to ignite a petrol soaked rag [outside the car]. If you do not have a lighter then remove the battery from the vehicle, pull out two wires from the vehicle and attach these to the terminals of your battery and run them away to the ground. When the ends are touched together they will spark and ignite tinder.



The battery method of fire lighting

Note:

The gas produced by a battery is highly volatile and if exposed to a spark could cause an explosion. Make sure the fire is started away from the battery.

Torch Battery Method

A fire can be started by holding very fine steel wool from your tool kit over the negative terminals of a 6-volt torch battery and brushing it against the positive terminal. The sparks produced should ignite the steel wool [make sure you have tinder ready].

Chemical Method

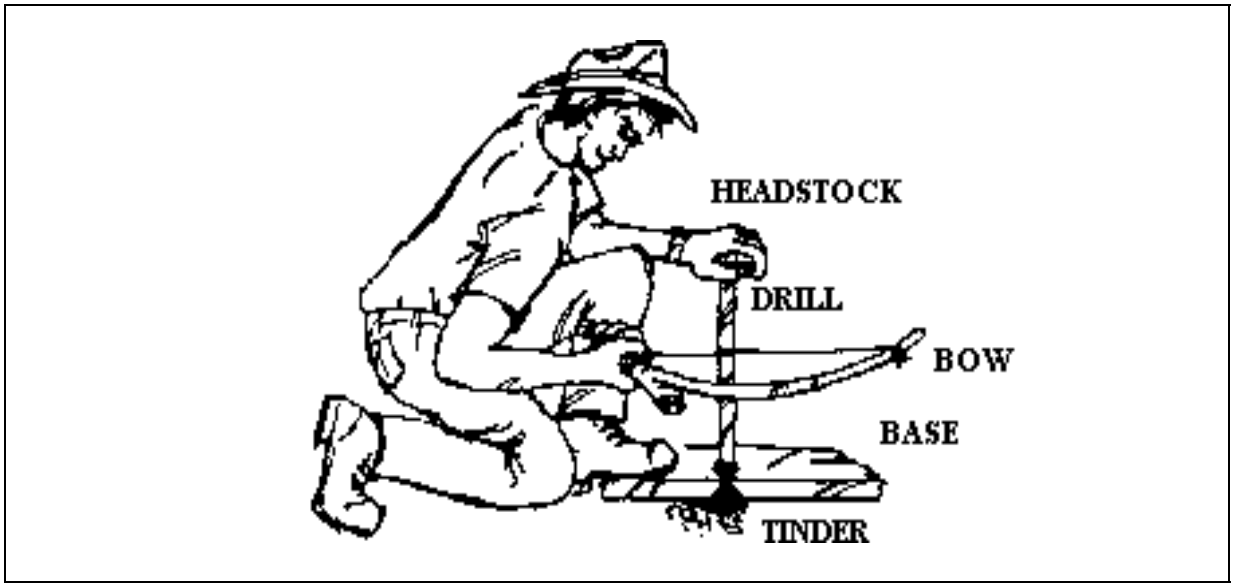
Condies Crystals [carried in some survival and/or first aid kits] can be used to start a fire by mixing in equal amounts with sugar [barley sugar can be used] and grinding them with the flat of a knife blade. The result is a brief intense flame.

Note:

Make sure that you have tinder prepared and ready when lighting fires.

The Fire - Bow Method

This method is used by many indigenous people around the world. To use the fire-bow take a turn around the drill with the nylon cord attached to the bow [if you have used green timber for a bow the tension will be applied automatically, otherwise use your fingers to hold it tight]. Place the tip of the drill into the base starting groove and hold the headstock onto the top of the drill. Push and pull the bow to rotate the drill. The over-heated shavings [punk] will fall through the groove in the base onto the tinder. The small ember, which will form, should be held in the tinder and blown until it ignites.



The fire-bow method of fire lighting

The Bow - can be any branch of a tree and should be approximately 45cm to 60cm.

The Head Stock - is a piece of hardwood to hold the top of the drill and allow it to rotate.

The Base - is a softer piece of dry wood flattened top and bottom so it will sit on the ground to allow the drill to start. A small groove is cut into the side of the base directly beside where the drill is to be used to allow the shavings or punk to fall onto the tinder.

The Drill - consists of a piece of dry wood of soft texture 30 - 40cm long and as straight as possible. The diameter should be 1.5cm to 2cm, the drill sharpened to a point at both ends to fit into the starting groove of both the base and head stock.

Note:

One of the better types of wood to use for both the drill and base is the lower wooden portion of the flower stalk from the balga plant.

The Lens Method

Strong sunlight focused through a lens can produce enough heat to ignite tinder. The lens can come from a magnifying glass [including the base of some compasses], binoculars, camera or telescopic sights from firearms.

Flint, Steel and Magnesium Blocks

Flint is a stone which if struck with a piece of steel [knife] produces sparks, which will ignite tinder. Magnesium blocks [flint attached] are available commercially for inclusion in survival kits as emergency firelighters.

Food

LIVING OFF THE LAND

Although food is not as important as the other three requirements for survival it is necessary for a prolonged survival situation. Any available foods should be eaten sparingly, keeping in mind that it is better to have one meal a day than to nibble small amounts.

The average healthy adult can live for several weeks without food so this will give ample time to locate nourishment from natural sources if necessary.

Food sources

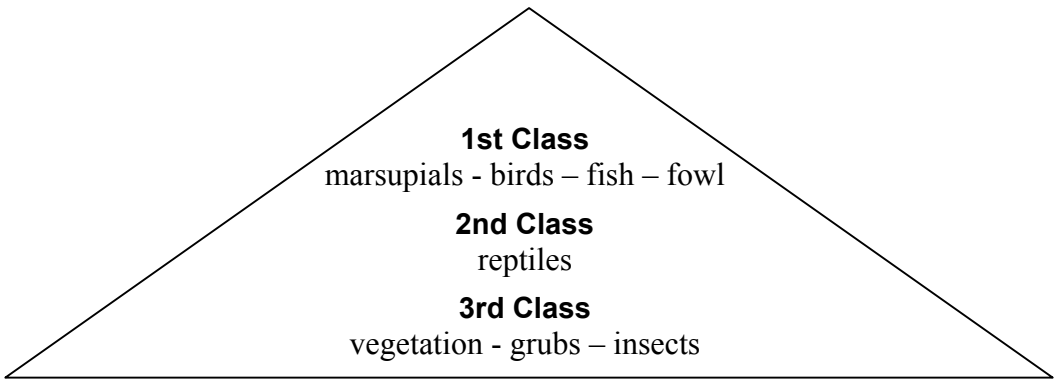
Sources of food available to survivors include; animals, bird life, marine life, insects, grubs and plant life.

In considering natural sources of food, there are some important points to remember

- Most animals, bird and plant life are protected and should only be used for food sources in emergencies. Should it be necessary only kill what is needed for your survival.
- The body needs fluid to digest food, so foods with a high water content should be considered before others. If no water at all is available, then food should be avoided, particularly meat, which requires more fluid to digest than vegetation.
- You do not need to be a skilled hunter to obtain food in the bush. Even without weapons of any description enough lizards, insects and grubs can be found to keep a person alive for several days simply by looking under rocks and dead branches, tree stumps and anthills.
- If possible all foods should be cleaned carefully by washing, then cooked, thus lessening the chances of any infection or stomach upsets.
- Generally bush food is tough, fibrous, unpalatable, and to some, even nauseating; nevertheless it is food.

THE FOOD PREFERENTIAL

Most people when forced to live off the land will find it easier to try to eat food that reminds them of their normal diet at home. For this reason it is handy to know that our food preferences can be divided into three classes. These are –



Animals and Reptiles

The presence of any animal or bird life in an area is evident by tracks, droppings and traces of fur or feathers. If you have been lucky enough to find a waterhole used by animals it is a simple matter to sit under cover, down-wind from the water source and either shoot or snare the animals as they come to water.

Even by walking through the bush quietly during the day it is possible to surprise sleeping animals in creek beds, under shady trees and amongst rocky outcrops.

Some of the most likely animals seen in the bush include kangaroos, small marsupials, wild goats, donkeys, pigs, rabbits, snakes, lizards, frogs, sheep and cattle.

Some imagination and bushcraft skills are needed in knowing where to look, how to recognise tracks and how to snare the faster moving animals.

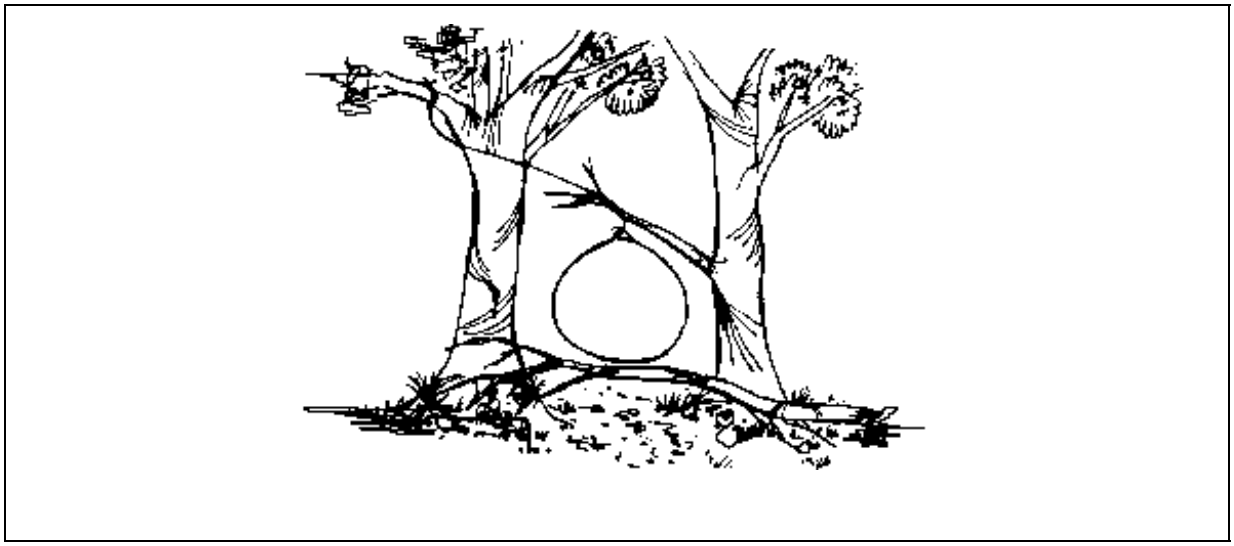
SNARING ANIMALS

Without a firearm or manufactured animal trap most animals can be snared with a wire noose placed in a convenient position such as the entrance to a hole or above an animal path between two trees.

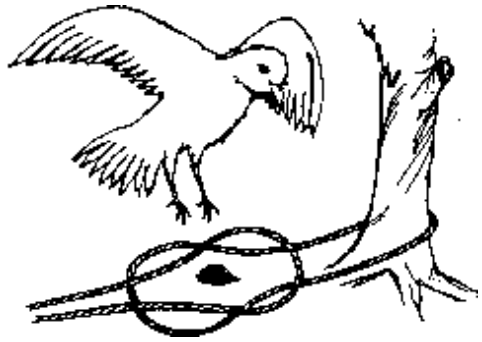
The noose should slide freely and the other end of the wire should be anchored securely to a tree or post. As the animal passes through, the noose tightens around the neck quickly killing it as it tries to pull free. This type of trap is generally successful at night when the animal cannot see the snare. Care should be taken not to leave any human smell on the wire.

Owing to the cruel nature of the snare, it should only be used when other methods fail.

If setting a snare look for signs of fur around a tree's base or signs along a fence line to indicate where an animal has passed through. Animals will return to the same place to sleep and will continue to negotiate fences at the same spot.

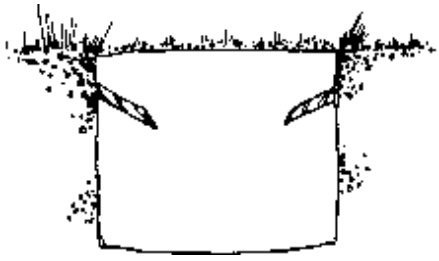


The animal snare

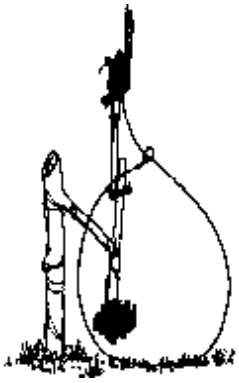


The reef knot snare

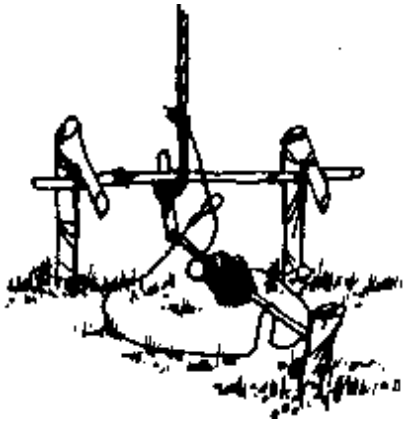
The possum snare



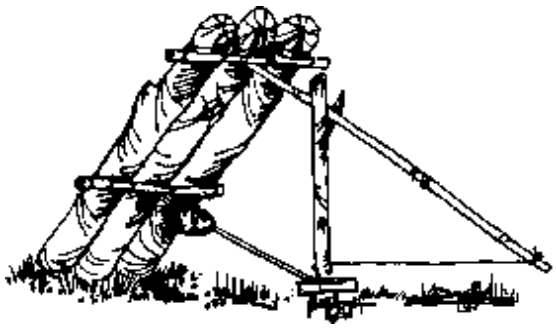
The pit trap



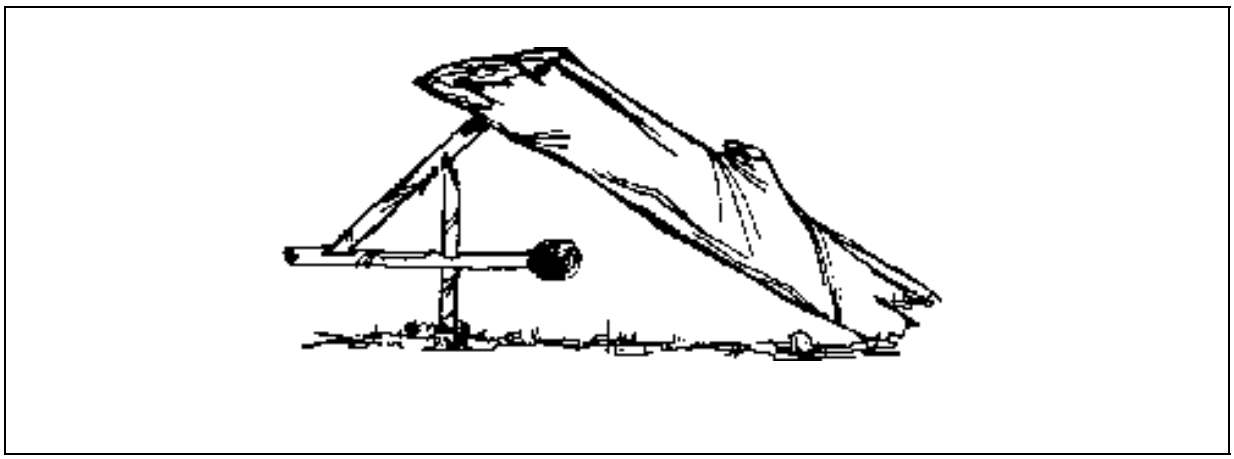
The bait-stick snare



The toggle stick release snare



The toggle stick deadfall



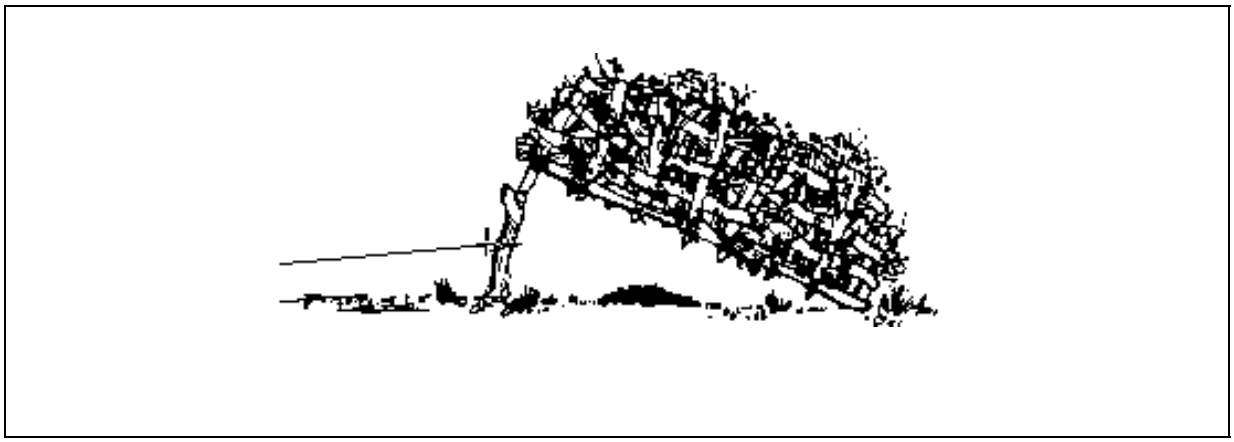
The figure four deadfall

Note:

Remember traps and snares are illegal in Western Australia and should only be used in survival situations when your life is in danger.

Bird Life

Ground feeding birds can be trapped by placing grass or other bait under a cage made from wire netting or green sticks woven together. The cage is propped up with a stick that is pulled out by a hidden observer tugging a string as the bird walks under the cage. The cage falls, trapping the bird.



The bird trap

A fishing line can also be used successfully. Bait the hook with an insect, bread, or other edible matter; tie the line to a tree or stick where the birds frequent.

Birds are rather difficult to shoot or trap because of their flighty nature but you may be lucky enough to locate a nest, either on the ground or in the trees, containing eggs or young.

Most birds try to confuse intruders by flying away from their nest at the approach of any danger. This has the effect of leading the intruder in the wrong direction, thus protecting the eggs or young.

Emus are very common in outback areas and can be enticed towards bright objects waved by a person hiding behind a bush. As the bird's inquisitive nature leads it within metres of the object, the person can then step out and kill the bird with a suitable weapon.

When shooting or trapping, frequent a water source if possible. Stealth, not speed, is of great importance when shooting and patience at a water hole at dawn or dusk is usually rewarded.

Reptiles

All reptiles are edible including venomous snakes [remove the head and portion of the neck to remove the venom glands]. Goannas being reptiles are fatty and oily so if you have to eat these, overcook them. Remember, care must be taken when catching venomous snakes and other reptiles, as their bite can be fatal or lead to infection.

Note:

In the period from 1980 to 2001 nine deaths have been attributed to snakebite in Western Australia.

Marine Life

Fish are a valuable food source containing protein, vitamins and fats. All freshwater fish are edible. It takes skill to catch fish but by considering their feeding habits and following some simple methods you can be successful.

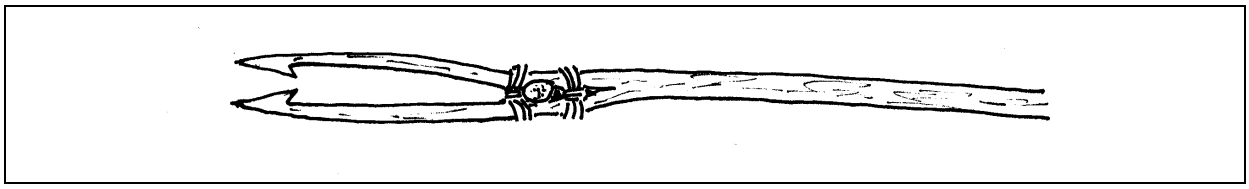
Where to fish

Fish frequent those places in the water where they are most comfortable and where they can feed. The ambient temperature of the area will affect these places. You should remember –

- If it is hot and the water is low they will seek shaded water and deep pools. In lakes they will retreat to deep water.
- In cold weather they will choose a shallow place where the sun warms the water and in lakes they will keep to the edges where the water is warmer.
- If the river is in flood they will seek slack water generally on the inside of bends or in small tributaries feeding into the main stream where the water may not be so turbulent.
- Fish and marine life like to shelter under banks or below rocks and submerged logs.

The Forked Fishing Spear

Fish can also be speared using a forked fishing spear. These are more effective than a single pointed spear at holding a speared fish and are made from a green sapling, split at one end and carved into two sharp prongs complete with inward pointing barbs. Before carving separate the prongs with a wooden wedge then lash the two prongs together using cord from your survival kit. After carving the spear can be hardened over a fire.



The Forked Fishing Spear

Tidal Fish Traps

Fish can also be trapped near the water's edge by using a fence of upright sticks or rocks pushed into the sand close together and left in place. This type of fish trap is used by fishermen in tropical areas with extreme tides where netting is used in place of the sticks. The fish are trapped by the mesh of sticks or rocks and easily removed when the tide goes out.

Gathering Shellfish

A method of gathering seafood on the coast is by digging in the sand or turning over rocks for shellfish at low tide. This is how some fishermen collect bait for line fishing.

The Basket Trap

Freshwater crustaceans [marron, etc] can be caught in simple basket traps baited with animal entrails or decayed meat and left in position. They should be fitted with a funnel at one end and tied together at the other. It is important they be weighted down, staked in position or tied to the bank to ensure they are still there when you check them. To make a basket trap –

1. Cut a bundle of green sticks 1m in length and 1cm in diameter and mark out a circle on the ground the size of the end of the trap.
2. Make holes in the ground around the circle with a stick every 4cm and stand a stick from your bundle in each hole.
3. Weave around the bottom of the trap three times with a long piece of thin green stick and tie off with cord to keep it together.
4. Tie the top of the trap together with a piece of cord to form a cone shape.
5. Weave a length of thin green stick around the trap basket fashion.
6. Make a smaller similar cone with the narrow end open and place it inverted inside the large cone to form a lid and entry.

The Marron Snare

A traditional method of catching marron is to tie a small piece of meat to a length of cord or fishing line and throw it a metre or two into the water. In clear water you will see the marron coming to the meat. Once they take the meat they will hang on stubbornly and can be drawn to the edge of the water and lifted out onto the bank. They can also be caught by using a pole with a running loop of snare wire tied to the end and placing it over the marron from behind and dragging them out of the water.

Insects

Insects and their larvae are often overlooked as a source of food even though they are widespread, a good source of nourishment, have a high food value, high fluid content and are easy to obtain. Fried termites and ant larvae for instance are a rich source of food.

In some overseas countries, maggots, grasshoppers and termites form part of the natural diet. Termites can be obtained by picking them up on the end of a wet fingertip after breaking open anthills or dead wood. The taste of termites and ant eggs is not offensive.

The insect larvae known as the bardy or witchetty grub is obtained by breaking open dead trees and balga stumps after examining for the characteristic borer holes in the south-west and by digging up the surface roots of the Witchetty Bush [acacia kempeana] in the central desert area. They live on the dissolved sugars from the sap of trees, are highly nutritious and are high in calcium. The entrails should be removed by holding the head in one hand and the tail in the other then pulling. Other insect larvae may also be present and can be eaten if there is no offensive smell or taste.

Honey ants can be collected near the base and on the branches of trees in tropical areas. The fluid from their abdomens is good nourishment as is honey from wild bees if you are lucky enough to locate any.

Note:

Do not eat furry grubs or grubs with black showing through the skin and remember that while snails and slugs can be eaten they are an unlikely source of food as they favour wetter areas and there would probably be better alternate food available.

ANIMAL BUTCHERY

Most animals can be eaten although most of us have a preference for herbivorous animals such as cattle sheep, pigs, horses, rabbits and poultry. There is no reason however, that you cannot eat vermin in a survival situation.

Signs Of Disease

Check all animals for disease, the body should look well fed and be clean smelling. If in doubt a small piece of meat can be boiled in a covered pot, when the water is boiling if the vapours have a bad smell you should not eat the meat.

Do not eat birds when the flesh is flabby, purple, a green discoloration around the neck, stiff feet, collapsed eyes or a sour smell present. If you can pull out a rabbit's fur, if its eyes are enlarged and dull or its body cavity slimy it should not be eaten.

PREPARATION & COOKING OF GAME

The size and type of animal will determine your method of preparation for cooking.

Large Animals

Should have the throat cut to 'bleed' the carcass, hung up by the hind legs, the gut contents, head, and skin removed then cut into joints.

In a survival situation meat can be cooked by boiling, frying, grilling, baking or steaming depending on what resources are available.

Kangaroo

Kangaroo meat is very low in fat and very high in protein and iron. Because of it's low fat content it tends to dry out quickly and must be cooked carefully. Cook it quickly by grilling over an open fire as steaks or kebabs.

Emu

Emu meat is very low in fat and high in protein, iron and vitamin C. It is red in colour and similar in texture to lean beef. The tenderness and texture of the meat enables it to be prepared in many ways. It is best cut into thin steaks and lightly grilled over an open fire.

Rabbits

Should be skinned, gutted and have the head and feet removed. They are best cooked by inserting a green stick in the body cavity and turning them over hot coals.

Snakes

Should have the head, skin and stomach removed and be cut into pieces. The meat is best grilled over hot coals.

Lizards

Are prepared simply by removing the head and gut contents. They are best grilled over hot coals with the skin left on.

Birds

Should be bled as soon as possible after death and have the head, feathers and the intestines removed. Birds can be cooked by wrapping them in foil from your survival kit, clay, large leaves or paperbark and placing them in the coals.

Fish

Fish should have the intestines removed and be cooked with the scales and skin on. They can be wrapped in foil from your survival kit, bark, leaves, mud or clay and cooked in coals. When cooked the flesh can be accessed by peeling away the wrapping and skin.

Note:

Remember to wash all meat of blood before cooking, make sure that you wash all blood and meat from your hands after handling dead animals.