

This table shows how long a man can live with various amounts of water in various temperatures IN the SHADE and assuming that he is not physically active.

Note of the co-author, this file is not finished yet as I write this on June 25 1995, it even needs a bit of translation still, which will be done in the final upload, so please bear with me till then.

However I believe that so far all which is written can be used without too much problemo. If you see any glaring mistakes write them to me & I will make the necessary correction. Thanks.

DR. E. A. ADOLPH TABLE:

This table shows how long a man can live with various amounts of water in various temperatures IN the SHADE and assuming that he is not physically active.

Its conclusion after much researches are that it is: **Better to renew the water provision of your body every hour.**

HOW LONG CAN A MAN SURVIVE IN THE SHADE?:

EXPECTED DAYS OF SURVIVAL:

Max daily temp.

Fhrt	1qt	2qt	4qt	10qt
120	2	2	2	2.5
110	3	3	3.5	4
100	5	5.5	6	7
90	7	8	9	10.5
80	9	10	11	13
70	10	11	12	14
65	10	11	12	14
50	10	11	12	14.5

Fahrenheit	Shade	No Water
120	3	4
110	5	5
100	13.5	7
90	15	10
80	29	23
70	32	?
65	32	?

AND 3 TIMES MORE WATER IF EXPOSED TO SUN EVEN WITHOUT MOVING.

WATER RATIONING OR NOT?:

STEAD USA Ranger instructions are the same as many Survival books:

Drink whenever you are thirsty. NO matter the quantity of water you may have, small or big. RATIONING WILL NOT HELP.

EQUIPMENT NEEDED:

HERE ARE THE ESSENTIALS WHICH YOU NEED IN THE DESERT!:

A few litres of water and a mirror or any other reflecting object. A compass, a flash light and water. Material that will project shadow, adequate clothing and more water. Additional Signalization equipment (flares, etc.)

More water once more and finally food. **IN OTHER WORD 4 TIMES MORE WATER.**

DESERT TRAVELLING:

If you decide to get on your way do the followings:

1) **TRAVEL ONLY AT DUSK, NIGHT AND DAWN.**

2) March in direction of the littoral of the sea cost or toward a known road, a water stream or habitated region.

Along the sea you can find soft water (see water*) and dampen your clothes which will help preserve your body moisture.

3) **Choose the EASIEST road**, avoid soft sand and accidented landscape & follow the trails.

3B) Walk in the hollow of the sand dunes or on their peak where the terrain is most solid.

4) In most deserts, the river beds end in closed basin or temporary lakes, don't follow them if you want to reach the sea.

5) If possible check your road with a map, but realize that desert maps are relative, not **ALWAYS** exact because of the sand shifting the landscape all the time.

6) **Do NOT travel when the visibility is bad.** Take shelter during a sand storm. Mark your directions using a stick deeply stuck in sand, a row of stones or any other means: use your image-in-nation.

DURING A STORM LAY ON YOUR SIDE, your back to the storm wind. Cover your face with a cloth and try to sleep.

Don't worry about being covered with sand, it takes years for sand to cover the rest of camels. If possible seek refuge near a hill on the opposite side of the wind.

7) Multiply by three your distance estimations. A distance under evaluation is **ALWAYS** possible in the desert.

8) Mirages can come up in summer when facing the sun, it is very difficult to affirm under what conditions and form they appear.

DESERTS:*

One fifth of the earth's land surface is desert. Dry barren land where survival is Very difficult.

There are all kind of deserts. Their soil can be made of salt as well as sand.

Some are completely sterile where no plants nor animals can live, others can feed sheep & camels with a bit of grass and thorn bushes.

Very hot in the day and very cold at night. These are the basics of the desert which represent 1/5 of our Earth surface. There are about 50 deserts in the world.

Deserts occur where air currents which rose at the Equator and have already shed their moisture descend and are rewarmed as they near the earth, taking with little local moisture is present.

There are rarely any clouds to give protection from the sun or to retain heat at night so that great extremes of temperature occur from the highest shade temperatures (58C/136F in the Sahara) to below freezing point at night.

Only small parts of the world's deserts are sand. (About 1/10 of the Sahara). The greater part is flat gravel cut by dried up water courses wadis.

The wind has blown the sand away, piling it up in low laying areas. Elsewhere there may be wind carving mountains, dried mud-flats & larva flows.

ARID REGIONS:

Most deserts lands were once fertile and some of the creatures that lived there then adapted to the new conditions.

Like them the survivor **MUST** learn to make the most of any available shade to create protection from the sun, reduce moisture loss and restrict activity to the ends of the day and the night. Learn from the people who live or travel through the deserts.

In some deserts especially the Sahara, the deserts of the Middle East, of Peru & northern Chile and parts of the Goby deserts in Mongolia there are great temperature differences between day and night.

At night condensation of any moisture in the air can make some water available-and in the *Nami desert of Southern Africa fog coming in from the sea often provides for life.

Elsewhere, in such deserts as those of Western Australia, Northern Mexico & the Mojave of the South-western USA, where the temperature changes are comparatively slight, there's very little condensation and consequently both plants and games are very rare.

Sometimes as in the Kalahari there will be sparse grass & thorny bushes and even in the most barren conditions, some kind of life seems to survive, though often invisible if you don't know where to look

Dust & sand storms may occur at certain times of year reducing visibility to zero and demanding maximum protection to prevent sand entering every orifice. Dust devils-desert whirlwinds like tornadoes are quite common.

When rain does come & in some territories years may pass with none at all- it may be in torrential down pours which create flash floods, before being quickly absorbed into the parched ground.

This provides for a brief blossoming of vegetation & the emergencies of species such as the *Spadefoot Toad of Arizona for rapid reproduction.

DESERT RAINFALL & TEMPERATURE:

Typical of desert extremes are conditions in the *Rub'al Khali the Empty Quarter, of southern Arabia. For most of the year there is only a trace of rain but over 30mm may fall on a single day in the winter.

July temperatures may reach over 48C (120F) dropping to 15C (60F) at night & December extremes range from 26C to -6.6C (79-20F)

WATER; FINDING IT IS VITAL:

Water needs are paramount. If you are stranded by mechanical failure during a planned desert crossing, you will have plotted your route with an awareness of oases, wells and water-holes.

Wells can be very deep and the water level requires a container lowered on a line to reach it.

Small water-holes in wadi bottoms are often seasonal. They are usually covered with a stone or brushwood.

Away from unknown water-holes, try digging at the lowest point of the outside bend of a dry stream bed or at the lowest point between dunes.

DO NOT DIG IN THE HEAT OF THE DAY, THE EXERTION WILL USE UP TO MUCH FLUID LOSS AGAINST POSSIBLE GAIN.

Exploit cactus and roots as water sources and in deserts where the day/night temperatures range is great, exploit this to produce water by condensation.

LIFE EXPECTANCY:

It depends upon the water available and your ability to protect the body from exposure to the sun to minimise perspiration. Allow a slight negative balance.

Drink 1.5 litre for every 2 litres lost (3-4pt) & then drink at the rate the body is sweating.

NOTE: THAT THE RATIONING IS USELESS, IT WILL NOT PROLONG YOUR LIFE EXPECTANCY BY MUCH.

Efficiency is then impaired little and no water is wasted. Less fluid will not result in less sweating.

Sweating is a cooling mechanism not a way of loosing moisture. If more fluid is drunk than needed it will be excreted & used to no purpose.

Without water you will last about 2 1/2 days at 48C (120F) if you spend the whole time resting in the shade, though you could last as long as 12 days if the temperature stays below 21C (70F).

If you are forced to walk to safety the distance you cover will relate directly to water available.

With none, a temperature of 48C (120F) walking only at night, resting all day, you could cover 40km (25miles).

Attempting to walk by day you would be lucky to complete 8km (5miles) before collapse.

At the same temperature with about 2 litres (4pt) of water you might cover 56km (35 miles) and last 3 days.

Your chances aren't appreciably increased until available water reaches about 4.5 litres (8pt) per person, though training & determination to survive could contradict prediction. Miracle still occur

ORAL RE-HYDRATION SALTS: ***

New technical food survival gadget called oral re-hydration salts which are widely used in starvation country lately, it seems that it has recently come out and already saved thousands of life. Where to get it and what is it???

SHELTER & FIRE:

Make a shelter from the sun and rest in its shade. You'll also need protection from winds and low night temperatures.

DO NOT stay in a metal vehicle or airplane which may rapidly become overheated. Use it support a shelter or make use of the shadow beneath an aircraft's wing.

Make use of rock outcrops and the shadow provided by the sides of a wadi. Use the double layer techniques to aid cooling.

In a sand desert you may even be able to use wreckage to make a shelter beneath the sand

Many desert creatures spend the day beneath the surface, where the day temperature is much lower and night much warmer than outside.

Sand will not permit tunnelling and you have to make a support structure.

Having provided immediate shade, build your shelter in the cool of the evening to conserve energy and fluids.

Pile rocks to make a windbreak and make use of wadi walls (except when rain and consequent flash floods seem likely).

If using fabrics, leave the bottom edges lifted and loose by day to increase air circulation. Weight them down with rocks at night.

Avoid lying directly on hot ground. If you can; make a raised bed air can circulate beneath you.

You will need fire for warmth at night and for boiling water. Smoke will also be very noticeable and useful for signalling. Desert scrub is dry and burns easily.

If the land is totally barren, vehicle fuel & oil mixed with sand in a container will burn well (& is an easy way to light other fires) or use a string wick Camel donkey & other animal dropping burn well.

DESERT STOVE: **

It is not hard to make fire by using this method; take any metallic container, fill it with sand, imbibe it with oil or gas & light it with caution.

You **MUST** make holes in the container to let the air pass in thus insuring the combustion

NEVER add any gas or oil on a lighted fire. (You'll blow your mind!!!)

DESERT SHELTERS #2:

To survive in the desert, you **MUST** take shelter from the sun, the heat and at times sand storm. Here're some suggestions

1) Cover yourself with sand to protect yourself from the sun rays and to reduce the perspiration effects. Some survivors affirm that this sand pressure relax and rest them.

2) If you dispose of a parachute or any other adequate piece of material, dig a hole, cover it up with the tarp.

2b) **MAKE SURE** it is well fixed in the ground then crawl underneath. In proper place put the tarp over rocks or small mounts.

3) Take advantage of anything that can give you shadow and shelter. A cave, a tree, a rock or piled up stones done by others in the past. Along old river beds, valleys, gullies and ravine one can often find grottos and caves.

4) Whenever possible, use all existing shelters that you find

5) **Don't forget** to leave some opening to let air circulate.

6) Beside water, f/aid and signal, shelter is next in line, so if you have crashed, stay close to the plane once assured that there is no fire hazard.

Don't stay in it during the day, it is as hot as an oven, yet at night it can be used to protect from the cold.

During the day, make a pent-roof with a parachute which you install over a wing, leaving at least 2 feet of free space under the pent-roof to permit the air to circulate

MAKE SURE that the plane is well attached and that there is no risk that it will crush or cave in, if there is a sand storm or big wind.

CLOTHING:

It helps reduce fluid loss and gives protection from sunburn as well as warmth at night and a barrier against insect bites and thorns.

In the desert it should be light and loose fitting with air space between the garments and the body to provide insulation. Copy the flowing, layered garments of the Arab world.

Trousers give more protection from insects than shorts and guard against serious burns on the legs if forced in daytime exposure. Cover the head and feet.

KEEP COVERED:

Do not strip off your clothes. Apart from the risk of severe sunburn, an uncovered body will lose sweat through evaporation requiring even more to cool it.

But keep the covering as loose as possible so that there is a layer of insulating air. Sweating will then cool you more efficiently.

HEADGEAR:

Any hat with a piece of cloth attached to the back will give some protection to the head and back of the neck but it is better to copy the headgear of desert peoples.

You need a piece of material about 120cm (4ft) square, a smaller piece such as a handkerchief and a piece of cord or cloth (a tie is ideal) to keep them in position.

Make the handkerchief into a wad on top of the head. Fold the large cloth diagonally, place it over the handkerchief, the long edge forward. Tie cord or cloth around the head to secure them.

Allowed to fall freely this will protect from the sun, trap pockets of air, take advantage of breezes and protect from sandstorms. At night wrap it around the face for warmth.

DESERT CLOTHING #2:

In order to protect oneself from the sun rays, excessive perspiration and numerous bugs and harmful insects in the desert we give you these tips;

- 1) During the day, cover your body and head, wear long sleeves and long pants the desert is no beach party.
- 2) Protect the back of the neck with a piece of cloth.
- 3) If you have no sunglasses improvise by making a slit in a piece of cloth just big enough to pass a coin, which you will wear over the eyes *p182b.
- 4) If you have to abandon some clothing because of the weight, do not exaggerate, think of the chilly night.
- 5) Wear clothes that are baggy, nothing tight fitting.
- 6) Don't expose your skin except in shadowy places, even reflected the sun rays can burn you.

DESERT & FOOTWEAR:

TO PROTECT WELL YOUR FEET MEANS, IT CAN SAVE YOUR LIFE!

- 1) **KEEP YOUR SHOES FREE OF ALL SAND** and insects even if it means very frequent stops. Better to stop than being grounded.
- 2) If you don't have boots, make puttee bandages by doing so; in a piece of cloth, cut 2 bands of 8 to 10cm wide by 1 meter long. Roll these ones in spirals starting at the upper part of your shoes, this way the sand won't filter in them.

3) Take your shoes off when you rest in the shadow. But be prudent by so doing, for if your feet swell, it will be more difficult to put them back in your shoes.

4) Don't walk barefoot, the hot sands can wound your feet, and the salted surface or a salted crust can burn them.

5) If you find an abandoned vehicle you can make a pair of sandals using some piece of old tires, but protect the upper part of your feet against sun rays.

If the soles of your shoes are worn out, better to reinforce them with a solid piece of cloth or anything you can improvise with.

6) Rest your feet often, let your sock dry up, turn them upside down and **MAKE SURE** no sands nor crease gets in the socks of Spock.

EYE PROTECTION:

Sunglasses or goggles will help- though many made for use in temperate climates may offer insufficient protection.

Soot from the fire smeared below the eyes will reduce glare reflected from the skin. Shield the eyes from glare and wind-borne sand with a strip of material. Cut narrow slits to see through.

FOOTWEAR:

DON'T WALK BAREFOOT ON HOT SAND!

Until your feet have become hardened. It will burn and cause blisters. Do not wear sandals which leave the top of the foot exposed.

Improvise coverings if you have none. Puttees will help keep the sand out of boots or could be extended to wrap around the foot over open sandals.

HEALTH:

Most desert illnesses are caused by excessive exposure to sun and heat. They can be **avoided** by keeping head and body covered and remaining in shade until sundown.

1) Constipation and pain in passing urine are common and salt deficiency can lead to cramps.

2) Continued heavy sweating on the body, coupled with rubbing clothing can produce blockages in the sweat gland & an uncomfortable skin irritation known as prickly heat.

3) Heat cramps leading to heat exhaustion, heat stroke and serious sunburn are all

DANGERS:

A gradual increase in activity & daily exposure to the sun will build up a defence. Provided that plenty of water is available.

4) Various micro-organisms attack the moist areas of the body-the armpits, the groin & between the toes. Prevention & treatment are to keep those areas clean & dry.

WARNINGS WARNINGS!

DESERT SORES:

In the desert even the most trivial wound is likely to become infected if not dealt with **STRAIGHT AWAY**. Thorns are easily picked up and should be pulled out as soon as possible.

Where the skin is broken a large and painful sore may develop which could prevent walking. Bandage all cuts with clean dressings and use what medical aids are available.

STEAD EXPERT NOTES ON DESERT:

STEAD USA Ranger instructions are the same as many Survival books. So for anyone who wants to survive the Desert, **the heat of the day and lack of water are Number -1- DANGER.**

DRINK WHENEVER YOU ARE THIRSTY. NO MATTER THE QUANTITY OF WATER YOU MAY HAVE, SMALL OR BIG.

RATIONING WILL NOT HELP.

Many war pilots have thus saved their life by drinking as much water as they could before any operation over the desert. It was the water in their body not in their bottle that kept them alive.

THE GREAT DANGER IS THAT THE AVERAGE MAN DOES NOT DRINK ENOUGH WATER. His thirst is often slaked before the water budget is balanced again.

This observation was made by American doctors in the last few years at various bases in the Arctic and Antarctic.

The soldiers stationed there had no thirst because of the cold climate and therefore drank little, as a result their bodies suffered from progressive dehydration.

The fact was discovered because men often complain of **CONTINUAL TIREDNESS.**

Since then they have been **URGED** to drink a certain amount of water every meal, and they soon felt much better.

Clearly this also applies in the desert, and a man need for water will rise in leaps & bounds and his expectation of life will drop as rapidly if he is physically active in great heat.

Yet this is often the mistake the people make while stranded in the desert.

So drink as soon as you are thirsty no matter your water reserve, you are not on a movie set to ration water.

DEHYDRATION ADD ON: *

In the desert heat, the Thirst itself CAN NOT indicate you the required quantity of water that your body needs.

In other terms you can drink enough water to quench your thirst and still suffer from dehydration. If possible, **Drink frequently and in small amount.**

If you only drink at meal time, you risk dehydration and you will tire more easily. To drink only 1 or 2 litre a day can be disastrous, especially when the temperature is high.

THE ABSORPTION OF SUCH SMALL QUANTITY CAN NOT PREVENT DEHYDRATION.

When dehydration tires you out, drink and you will fast recover your strength. A dehydration up to 10% of your weight can not be fatal, for ex:

If you weigh 70 kilos and loose 7 kilos by sweating it will be OK, as long as soon after you drink enough water to regain the weight lost.

Cold water drunk too fast can give you stomach cramps so beware. With 29 Centigrade or less you still can survive even after having lost 25% of your weight.

Yet if it is 32 Centigrade or more, a dehydration making you loose 15% of your weight can be very unlucky for your health.

DEHYDRATION SYMPTOMS:

First the thirst followed by general discomfort then followed by a slowing down of the movements as well as losing appetite.

Once you have lost 5% of your weight you can also on top of the general discomfort above, suffer from nausea.

Losing from 6 to 10% of your weight you can suffer from dizziness, headache, breathing difficulties, pricking in the arms and legs, the dry mouth, livid complexion, slurred speech & unable to walk.

REMEDY:

Only water can prevent dehydration and maintain your body in good function. Alcohol, urine, salted water & blood can only increase the dehydration process.

Yet salt water at sea is a bit different if you check with water chapter.**

EXHAUSTION SIGNS: *

Paleness, abundant perspiration, skin becoming moist and cold, deliriums or fainting are the signs.

Lay the person on its back in a shadowy place & give him water mixed with salt pills 2 of them per water canteen.

HEAT STROKE:*

This can happen suddenly, the face becomes purple, skin is hot and dry and the victim does not sweat. They suffer from violent headache and his pulse is fast. Fainting can result.

You **MUST** refresh the victim, relax his clothing, lay him down in a shadowy place but not on the ground, dampen his cloth but; Don't give any stimulants.

SUN BLINDNESS: *

Even if the sand is not as white as the snow, the danger remains the same to get blind.

So don't look at the sun, protect your eyes, cover your head to shadow your eyes, use good sunglasses, soot your cheeks, wrap up your face and head with piece of cloth as the Bedouins do.

SUN RAYS DANGERS:

It is **very dangerous** to expose yourself under the desert sun. You risk collapsing caused by:

CRAMPS:

They are the first signs of heat stroke, you feel them in the legs muscles & abdominal muscles. In such case you **MUST** take rest and absorb water with a bit of salt.

SUN BLINDNESS:

The intense blinding sunlight can lead to a sort of snow blindness produced by the sandy ground reflecting the short wave ultraviolet rays.

Slitted disks of cardboard have often served as an effective substitute for sunglasses. Also smearing the cheeks and lower eyebrow with black soot from your campfire will help a lot. (Like football player type of mask.)

SAND DANGERS:

Even the sand itself can be dangerous. Often it "gives" so much that walking in it becomes an immense labour.

PAY SPECIAL ATTENTION TO THE COLOUR OF THE SAND.

IN SYRIA FOR EX. IT IS THE RED SAND WHICH IS SOFT. IN LIBYA, THE BLACK.

It is this soft fine sand which the desert wind blows into the noses, ears, mouth and eyes. One rescued pilot said that anyone already suffering from dehydration each single grain will feel as big as a stone.

SANDSTORM & PROTECTION:

In sandstorm which may last several days, this is particularly troublesome, and the tongue and jaws will be completely parched with the hot air.

THE BEST PROTECTION AGAINST IT, rescued pilots have found, is to dig a hole into the ground, cover it with a tarpaulin firmly fastened down at the sides & crawl underneath

A sandstorm of course will often completely alter the outlines of the landscape, leaving valleys where there were dunes and vice versa.

WARNING! BEARING:

So if before the storm you have given yourself an objective to make for, you may be lost without a compass, unless you have marked your direction with an arrow of stones which will give you your bearing again.

DESERT MOSQUITOES REMEDY:

In many deserts swarms of mosquitoes are driven far into the waterless interior.

The sand-flies are even worse, tiny but vicious, they get through the finest mosquito nets and give their victims painful bites, which cause itching and even fever.

A party of survivors discovered that rubbing themselves with chewed tobacco drove off the flies.

DESERT WALKING = TOUGH:

In view of all these hazards, it is not surprising that people stranded in the desert have found that merely to keep going on foot was the hardest part of their efforts to survive next to the water problem and this even when they only walked at night.

SALT LAKES:

After a crash landing during the war, some airmen made the mistake of walking across crusted over salt lakes.

After the first hour their boots fell off, cut to shreds by the ground, corroded by the salts crystals. Their feet became sore & burnt like fire.

In the ends they wrapped their shirts around them & hobbled on over the sandy ground. Going through this salt crust was like thin ice in this apparently dried up salt lake thus giving them great difficulty saving themselves from this caustic mud.

DRIED UP RIVER BEDS DANGER!:

Walking in dried up river beds has proven equally dangerous for desert travellers.

These beds are usually stony and during sudden showers at the edge of the desert, the rain water instead of sinking in, fast becomes a raging torrent, washing away everything it meets.

Even if the rainstorm was miles away, the current will reach you later on, and without warning. (OOPS's!)

BOOTS OFF = GRAVEST ERROR:

Many survivors have made the mistake of taking off their boots when walking, then they couldn't put them on again after a rest because their feet were so swollen.

Others have cut holes in the uppers to relieve their aching feet which allowed sand and stones to get between soles and leather tops, causing them agonies of pain.

Sweat sores shredded the skin down to the raw flesh, and complete rest was the only thing which would help.

GONE WITHOUT NOTES & NO COMPASS:

Another way to do wrong is to abandon a wrecked plane or vehicle without leaving a note of the date and the direction they are taking or signs en route to show their direction.

Often they did not even have a compass but simply walked of at random. If they did not know how to get their bearings by the stars, this rash procedure usually proved downright suicidal.

The desert as a rule looks monotonous in colour and shape with no landmarks to keep the eye on. In the great sand-flats of North Africa survivors have fought on through the sand for 5 days only to find that they had been going round in a large circle.

UNDERRATING DISTANCE:

Others again, in the CLEAR desert air have underrated by many miles the distance to an objective they had set themselves, such as the top of a hill, although it constantly looked within an easy reach, it was really more than a day's walk away.

So they would keep on walking to a point of complete exhaustion, **ALWAYS** hoping to be there in a few minutes, **INSTEAD OF TAKING REGULAR REST EVERY HOUR.**

NEVER EVER LEAVE UNLESS:

For all those reasons above the survival experts repeat all the time that in the desert:

You MUST NEVER set off on foot from the scene of a crash while any hope remains of a search party coming to look for you.

If there is such a hope, **it is ALWAYS better to stay by** the wrecked vehicle or make an emergency landing with your plane rather than bale out by parachute.

TO BALE OR NOT TO BALE:

This advice is confirmed by both logic and experience. In the war some pilots landed in the Sahara behind the enemy lines as often as 7 times during one flight to repair damage to their planes and leapfrogged back to their units.

Others who have fought in Africa say that **Only** the wreck of their plane or vehicle saved them from certain death.

During the day its shade gave them protection from the sun and at night, the body-work gave protection against the raw cold.

As a rule it contained more supplies of food and water than the crews could have carried along into the desert on foot.

Again a search party can more easily spot the wreck of a vehicle including an aircraft than it can spot a single man or even a group, especially if the group is already some distance from the presumed scene of the crash.

There have been cases where people spotted by search parties were so revived by supplies from the air that they left their wreck to walk out of the desert, they were never seen alive again.

SIGNAL IMPORTANCE:

Above all distress signals can be given better and at the crucial moment if this is done from a permanent camp and:

DISTRESS SIGNALS ARE AS IMPORTANT AS WATER SUPPLIES.

If you can not attract the attention of search parties, you are just as much done as if you have not any drinking water

Very few servicemen stranded in the desert during the war were fortunate enough to be able to call for help by radio in planes which had to make a crash landing, the radios had usually been shot to pieces.

Many pilots successfully used the landing searchlights or flares to send out signals at night. **In dark desert nights these flashes could be seen more than 80 miles away.**

So anyone stranded with his car can dismount his headlights and try to send out distress signals with them during the night.

After emergency landings pilots have soaked rubber tires, rubber boots and flying suits in engine oil so that they could light smouldering fires which would give off smoke visible from a long distance away.

Those who had bailed out however or left their aircraft after landing had to be content with less effective aids.

A German pilot arranged stones in the shape of an arrow taking care that they would cast the maximum shadow that would thus be seen from the air. Others used parachute panels to lay out big SOS signs.

FOOD: *

In the desert one can go without food for many days, it is less important than water, so ration food at the start.

Do not eat in the first 24 hours and in principle do not eat, unless you have water since food takes a lot of body water to be digested..

FOOD NOTE 2:

Heat usually produces a loss of appetite- so do not force yourself to eat. Protein foods increase metabolic heat & increase water loss and liquids are needed for digestion.

If water is scarce keep eating to a minimum and then try to eat only moisture containing foods such as fruits and vegetables.

Food spoils very quickly and any cans, once opened should be eaten straight away or kept covered and shaded. Flies appear from nowhere and settle upon uncovered food.

PLANTS:

Vegetation away from oases and water-holes is likely to be little more than scrub and grasses-even in the semi-desert-but **grasses are Edible** and sometimes plentiful. **The Acacia* tree in the scrub provides EDIBLE BEANS.**

BEWARE of the Acacia thorns but try all its soft parts: flowers, fruits, seeds, bark and young shoots.

ACACIA:*

Has a double utility, its beans are **comestibles** and its roots retain water. These trees look like #Mesquites and the #Catclaws# * of USA South West.

GRASSES = EDIBLE:

The grasses of Sahara and Gobi are neither nutritious nor palatable but in the Sahara and the Asian deserts you may find the Desert GOURD * a member of the Squash family.

Its vine can run over the ground for 4-5m (15ft) Chew its water filled shoots and eat its flowers and orange sized fruits, the seed of which are edible roasted or boiled.

The Mescal *plant (an Agave from which Tequila is made) of the Mexican desert, grows with a rosette of thick tough sharp-tipped leaves.

Its central stalk which rises like a candle to a flowering head **can be eaten.** Cut the ends of the leaves to suck out water.

ANIMALS:

Desert often supports a variety of animal life that burrows into the sand or hides in any available shade during the day.

Insects reptiles, small rodents and specially adapted mammals such as the *Fennec Fox of North Africa* the Australian Bandicoot*, a hedgehog in the Gobi* and the Jack Rabbit of north America all of which have big ears to act as cooling aids

There are geckoes*, lizards and snakes. Tortoise and amphibians survive from when these were once well watered lands.

LIZARDS:

They are edible, except for Gila monsters and the Pearl lizard from South West USA. Mexico and central America but because of their anchylose walk they are not really dangerous & only found in the above desert.

OTHER ANIMALS FOR FOOD:

The Sahara has gerbils* and gerboas* The Middle East* Caracals & Hyenas*. The New World, Kangaroo, rats & coyotes. In the Kalahari there is a squirrel that uses its tails for shade.

There are even gazelles that manage to get all the moisture they need from the sap of leaves, though most large mammals are an indication that there is water supply within daily reach of their grazing areas.

Birds feathers give them good insulation against heat and many live and breed long distances from their water supply-such as the Road Runner of Arizona* (Bee-Peep!)

DESERT EDIBLE PLANTS #2:

In the desert all the tender parts of plants growing above the ground such as the flowers, fruits seeds & young shoots and barks can be eaten.

ALL THE GRASS (HERB) ARE EDIBLE EXCEPT THOSE OF THE SAHARA AND GOBI DESERT.

BEWARE OF ANY PLANTS CONTAINING A MILKY SAP WHICH IS POISON.

DATE: *

This tree grows in the African desert, in the South west Asia, India, & China desert.

MESCAL: (Peyote, STONE?!?)*

This plant grows in Europe, Asia, Africa, Mexico and Antilles. Although growing especially in the desert, it also grows in damp regions and the Tropics. In full maturity, the Mescal dresses itself of thick & tough leaves which ends are solid and sharp.

Its centre, the stem looks like a candle is Edible. Choose the plants which flowers are not opened yet, their fibber stems contain a syrupy & **delicious substance**. The Mexican used it as medicinal and hallucinogenic properties.

#LA GOURDE SAVAGE DU DESERT*#:

This climbing plant abounds in the Sahara desert, in Arabia as well as the coast of S.E. India.

Its vine measuring 2.5 to 3 meters long crawls on soil surface and its fruit gets about the size of an orange.

Its seeds are either roasted or boiled & its flowers are also Edible. The watery roots of the young shoots can be chewed to relieve the thirst.

#FIGUIER DE BARBARIE*#:

This plant from America now grows in numerous deserts as well as the sea coasts of the world except Arctic coast. Found in South East of USA, in Mexico, South America, along Mediterranean coast.

This plant carries pretty yellow or red flowers and covers itself of grapes with slicing thorns.

Looks strangely like some African cactus which have **milky sap thus poison, but the #Figuier de Barbarie# NEVER produces this milky sap.**

The comestibles fruits look like an egg growing at the top of the tree.

To eat it you **MUST** cut the upper part, remove the outer skin and eat the interior. **The #raquettes# are also comestible** Cut the thorns and slice the fleshy cushion in long strings eaten raw or boiled.

WILD PISTACHIO TREE:*

There are 7 species of the wild pistachios. Growing in arid & semi-arid regions of the Mediterranean Basin, in Minor Asia & Afghanistan.

Some of them **NEVER** loose their leaves, others loose them in dry season. The stems produce 3 grand leaves and numerous smaller ones. Once ripe, the nuts are hard and dry, eat them after having them roasted on hot embers.

ALMONDS: *

Wild almonds grown in semi-arid regions of Europe, Western, Mediterranean, Iran, Arabia. China, Madeira, Acores, Canaries Islands. The Almond tree looks like the Pear tree, grows up to 12 metres high.

The Almonds grow in grapes and are covered of a cottonous skin thick and dry. To extract the almond, open the fruit and break the centre core. Gather a great quantity, shell them and keep them in reserve. (High energy booster as peanuts!)

DESERT PLANTS WARNING!:

We repeat again, **beware of any plant giving milky sap**, they burn the skin, will cause blindness if the sap gets in your eyes and is poisonous if you eat them, it could be lethal.

FIRE:

In the desert one has rarely to make fire except to purify water, make signals and boil tea. (Preferably English at 5 o'clock!)

Usually the combustible is extremely rare in the desert, so the oil and gas if any left from the plane will be precious

VEHICLES:

For desert travel, fit long-range fuel tanks and make provision for storing drinking water.

Carry further supplies of both in jerry cans. A jack is no use in soft sand and an air bag should be carried which is inflated by the exhaust.

Extra filters will be needed in the fuel line and air intake. Sand tires **MUST** be fitted and sand channels carried to get you moving again when bugged down in loose sand.

(Sand channels are steel tracks filled with holes about 7 feet long which are put under tires when you get stuck they act as ramp.)

PROTECTION WHEN LEAVING CAR:

Upon leaving your car in the sun for a while **MAKE SURE** you cover the tires with some kind of white cloth or cardboard to protect tires from overheating, it would be good to put one over the windshield too if possible.

SPECIAL TUNING:

For higher altitudes the carburettor needs adjustments. In scrub country, thorn gaiters will reduce the puncture risks. Antifreeze and suitable wheels and chains are needed for snow and ice.

As well as snow tire grip when you get stuck. The engine will **need special tuning** to match climatic conditions and its own spares.

A spare wheel and a good tool kit are obvious equipment.

IN HOT CLIMATES:

Even when you have had modifications made to prepare your vehicle for hot climate conditions you may still find that you have problems.

In crossing some deserts the considerable temperature change from day to night can put a strain on any metal and increase the risk of leaks.

WARNINGS:

NEVER leave a sleeping or injured person or any animal in a closed car in a hot climate - or even on a sunny day in temperate regions.

ALWAYS leave windows open to ensure ventilation (heat exhaustion can be lethal) even if parked in the shade, as the sun will move.

OVERHEATING:

Stop and allow the engine to cool off. If you are driving a particularly tricky stretch and stopping is out of the question switch on the heater.

This will give greater volume to the cooling water & although the inside of the car will get even hotter, the engine will cool. When convenient stop and open up the hood.

DO NOT UNDO THE RADIATOR CAP UNTIL THE TEMPERATURE DROPS.

Check the radiator and all hoses for leaks. If the radiator is leaking, adding the white of an egg will seal small holes also chewing gum does the trick.

If there is a large hole squeeze that section of the copper piping flat to seal it off. It will reduce the size of the cooling area but if you drive very steadily you will be able to keep going.

METAL GETS HOT:

Be careful! All metal parts of a car can become hot enough to cause blister, even fry an egg

CARE IN SANDY CONDITIONS:

When adding fuel, sand and dust can get into the tank. Rig a filter over or just inside the inlet to the tank.

DESERT TROUBLES:

CAR STRANDED: "RATTTSS!"

If while driving in the desert, suddenly your car gets stuck in sand as it would in snow, **STOP IMMEDIATELY**, pick up the jack and lift your car, put stones under the tires and get ready to back up.

If you try giving more gas, you will get deeper in sand down to the axles and then you can't do nothing or at the least you are in for a lot of work, much more than having stopped immediately.

2nd ERROR:

Sure that the second truck or car is soon coming you did not fill your water containers, this error could be fatal, if the 2nd truck don't come around for any accidents can happen to him as well.

3rd ERROR:

In the Mojave desert, 2 men went to cross it without telling anyone, after getting stuck in the sand they accelerate thus got stuck for good. This was their 2nd mistakes.

Then instead of setting of foot as soon as the sun went down, they waited the next morning to leave this was their 3rd, now instead of turning back they went ahead in their first direction this was their last one, they were found dead a few weeks later.

SO FOR ANYONE WHO WANTS TO SURVIVE THE DESERT, THE HEAT OF THE DAY AND LACK OF WATER ARE NUMBER -1- DANGER.