DESIGN BY FAY HELWIG

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FOR

GEOFF LAWTON'S ONLINE PERMACULTURE DESIGN COURSE
CLASS OF 2015

I am a 75 year old widow living alone on a property that my late husband and I purchased 22 years ago with the purpose of establishing a rural retreat to accommodate paying guests. This establishment is known as Das Helwig Haus.

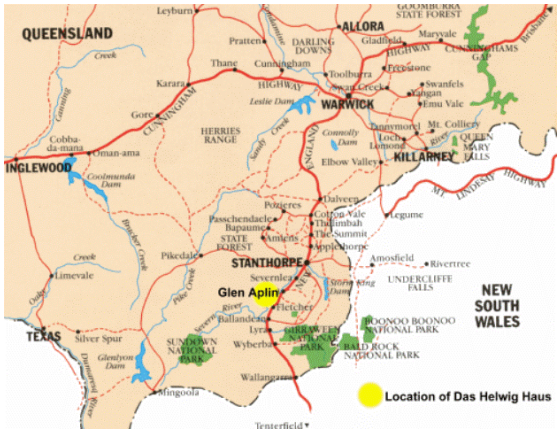
We closed the business when my husband's health began to fail. He died a year ago. My goal in undertaking this PDC was to find a new purpose for me and my property.

LOCATION

I own a 32 acre (14 hectare) property situated 1 kilometre from Glen Aplin, a small village near Stanthorpe on the Granite Belt region of south East Queensland. All reference details of location, climate temperature, precipitation etc. will be based on the town of Stanthorpe, 10 kilometres away.

The township of Stanthorpe was founded by tin miners. People came from many countries to mine tin from 1872 onward. When the tin prices fell many miners turned to farming. The climate was suitable for growing cool climate fruits and vegetables. The cool dry climate was valued as an aid to health from the early nineteenth century especially for those suffering from chest conditions. Following the First World War, Stanthorpe was a major resettlement area for soldiers recovering from mustard gas exposure. Many of these Soldier Settlers took up balloted land in the areas around Stanthorpe which now bear the names of First World War battlefields – Amiens, Messines, Bapaume, Passchendaele, Bullecourt, Pozieres and Fleurbaix.

Stanthorpe is the tourism centre for the wineries and national parks of the Granite Belt. There are 4 national parks, more than 50 wineries, and a wide range of accommodation and tourist venues. Storm King Dam and the Severn River offer some fishing opportunities for Murray cod, yellowbelly and silver perch.



I possess a corporate knowledge of this region from a grandfather born in the Stanthorpe district in 1876 and of my father born at Killarney in 1915. My father moved our family to the foothills of the Bunya Mountains in 1944 just north of Dalby and I lived in this region until 1986. I then moved to live in Toowoomba for 6 years prior to moving to the Granite Belt in 1992. I have lived no more than 3 hours driving time from my present home throughout my life. Most of those years were spent on various farms with different soil types. The Dalby region has open plains with heavy alkaline black soil and a dry-land climate in a subtropical zone. The Granite Belt where I now live is a warm, temperate climate sometimes called a Mediterranean climate, or a sub-tropical highland climate. It is an *EDGE* climate.

Stanthorpe has an altitude of 811 meters. Stanthorpe holds the record for the lowest temperature recorded in Queensland at -10.6 °C on 23 June 1961. Sleet and light snowfalls are occasionally recorded, with the last occurrence being in June 2013. Floods and frosts have been known to occur in every month of the year.

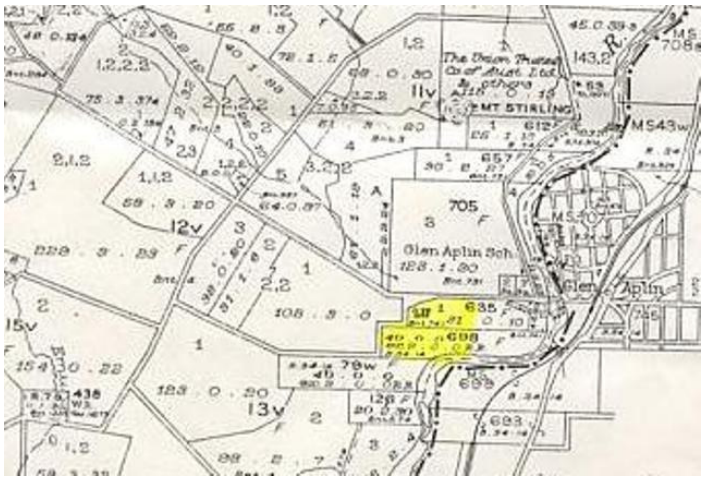
[hide]**Climate data for Stanthorpe (Stanthorpe Leslie Parade, 1957-2014)**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	37.8 (100)	37.2 (99)	34.2 (93.6)	30.6 (87.1)	27.3 (81.1)	22.8 (73)	22.2 (72)	30.7 (87.3)	32.2 (90)	33.4 (92.1)	35.7 (96.3)	38.0 (100.4)	38.0 (100.4)
Average high °C (°F)	27.4 (81.3)	26.4 (79.5)	24.9 (76.8)	22.1 (71.8)	18.4 (65.1)	15.5 (59.9)	14.8 (58.6)	16.3 (61.3)	19.6 (67.3)	22.6 (72.7)	25.2 (77.4)	27.0 (80.6)	21.7 (71.1)
Average low °C (°F)	15.6 (60.1)	15.6 (60.1)	13.8 (56.8)	9.5 (49.1)	5.4 (41.7)	2.6 (36.7)	1.0 (33.8)	2.0 (35.6)	5.1 (41.2)	8.9 (48)	11.9 (53.4)	14.2 (57.6)	8.8 (47.8)
Record low °C (°F)	7.0 (44.6)	3.3 (37.9)	−0.2 (31.6)	−2.2 (28)	−6.8 (19.8)	−10.6 (12.9)	−9.4 (15.1)	−7.8 (18)	−5.6 (21.9)	−2.2 (28)	0.0 (32)	4.4 (39.9)	−10.6 (12.9)
Average rainfall mm (inches)	97.3 (3.831)	85.8 (3.378)	65.5 (2.579)	42.7 (1.681)	46.7 (1.839)	47.2 (1.858)	49.1 (1.933)	42.3 (1.665)	51.7 (2.035)	69.4 (2.732)	75.6 (2.976)	93.5 (3.681)	766.8 (30.188)
Avg. rainy days (≥ 0.2mm)	10.1	9.5	8.9	6.3	7.3	7.7	7.6	6.6	6.5	8.2	8.7	10.0	97.4

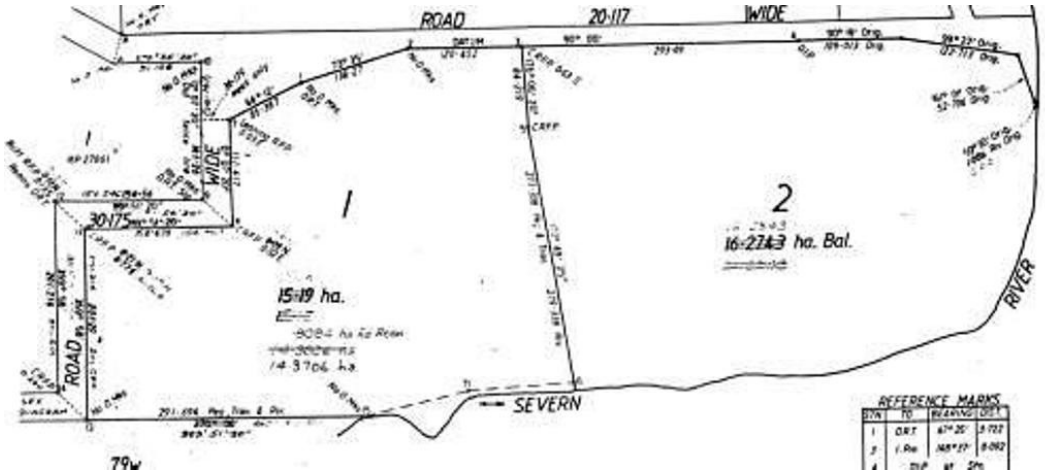
Source: Bureau of Meteorology[14]

PROPERTY HISTORY

The land was formerly a larger portion of 72 acres combined in 2 lengths as in the Glen Aplin district map.



The frontage to the Severn River was mined for tin in the 1800s. Later the arable land was planted with stone fruit and table grapes. In the 1960s it was divided across to separate the granite boulder strewn hill section from the low country, which contained no rocks, and also to give each title access to the Severn River frontage.



The low country of the neighbouring farm is now used for growing vegetable crops – zucchini, tomatoes, eggplant and capsicums in the summer/autumn months, with broccoli, broad beans and snow-peas as winter/spring crops. The same neighbour owns the land on the northern side of Mt Stirling Road. The arable land on that property is planted to stone fruit trees or cultivated to grow vegetables, while the rough country is used to graze a herd of beef cows and calves. These neighbours turn the cattle onto their vegetable fields to finish off crop trash prior to replanting.

I have an excellent relationship with all neighbours.

By 1992 when we bought Portion 1 of the property the fruit trees and grapes vines had been removed and the arable areas were grassed and lying fallow.

During the past 50 years the number of farmers on the Granite Belt has been reduced from 700 to 200 as small farms were no longer providing a viable income for families, due to falling produce prices and rising costs. This has resulted in considerable areas of fallow land growing grass, which poses a high bushfire risk, when combined with the proliferation of eucalyptus trees on the hillsides and along the Severn River. Winters on

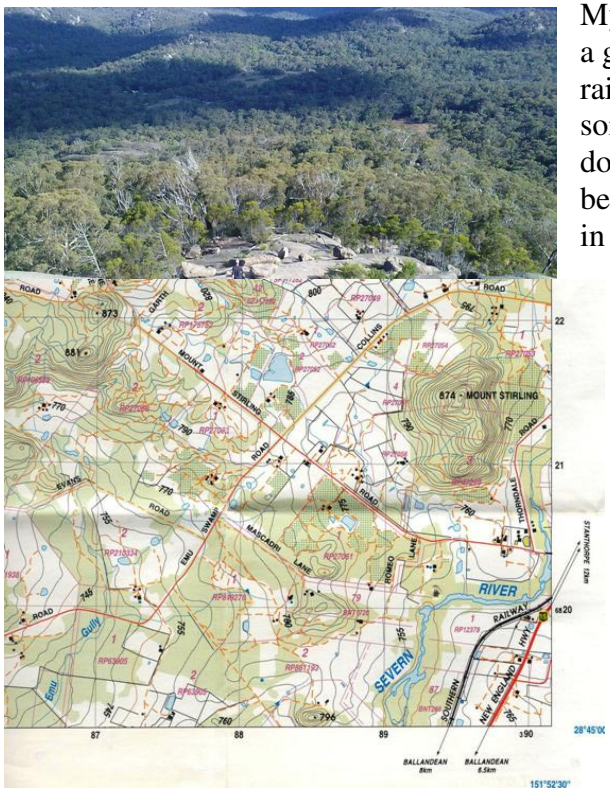
the Granite Belt are dry and frosty. The cold Polar jet, Westerly winds begin to blow in August.

During the 22 years that I lived on my farm at Glen Aplin I have documented all weather events with a photographic record.

Bushfires happen when dry conditions and the Polar jet - Westerly winds occur during a hot and dry October. Thus the Glen Aplin Bushfire Brigade and other district brigades actively encourage all landholders to undertake hazard reduction burning off of their country during the cool winter months of July and August.

CLIMATE

Unlike other temperate climates throughout the world the Granite Belt does not have deep, fertile soils. The soil of the Granite Belt is a neutral Ph7. The topsoil is shallow, decomposed granite the texture of fine sand intermingled with exposed granite boulders**.** The sub-soil, made up of a coarser form of decomposed granite, merely forms a layer containing more boulders above sheets of granite rock. The Granite Belt is situated on the top of a high tableland where much of the soil was eroded away thousands of years ago exposing granite peaks like The Pyramid in the Girraween National Park.

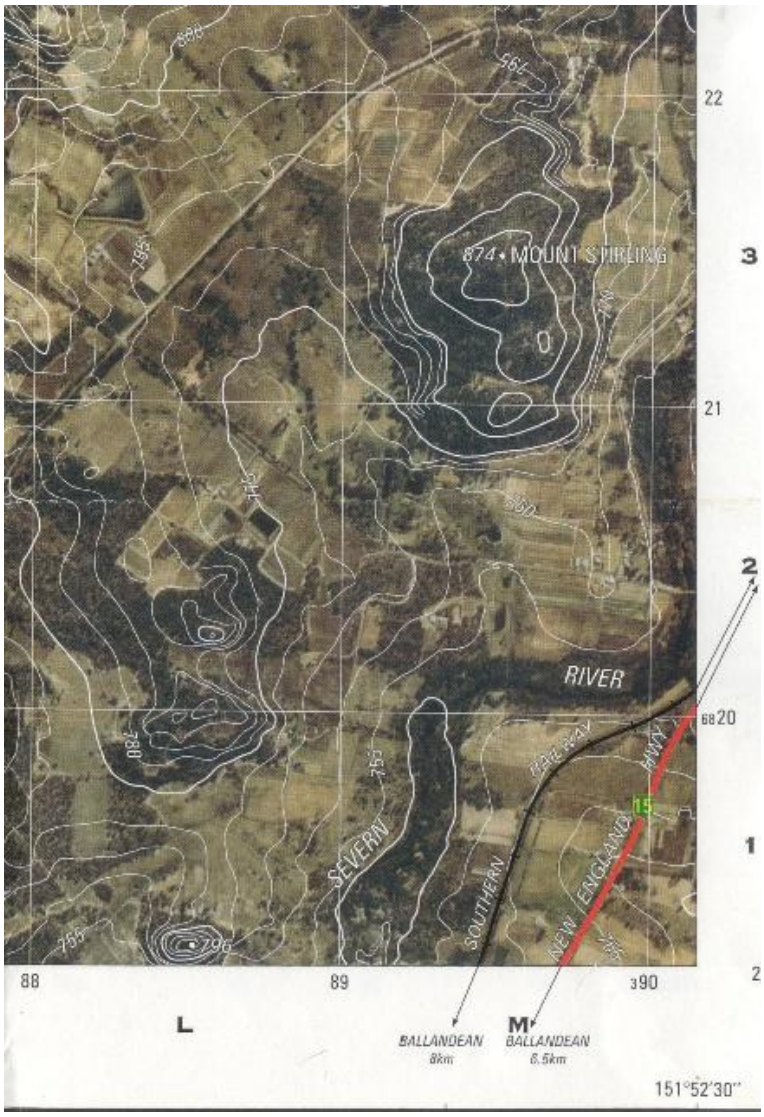


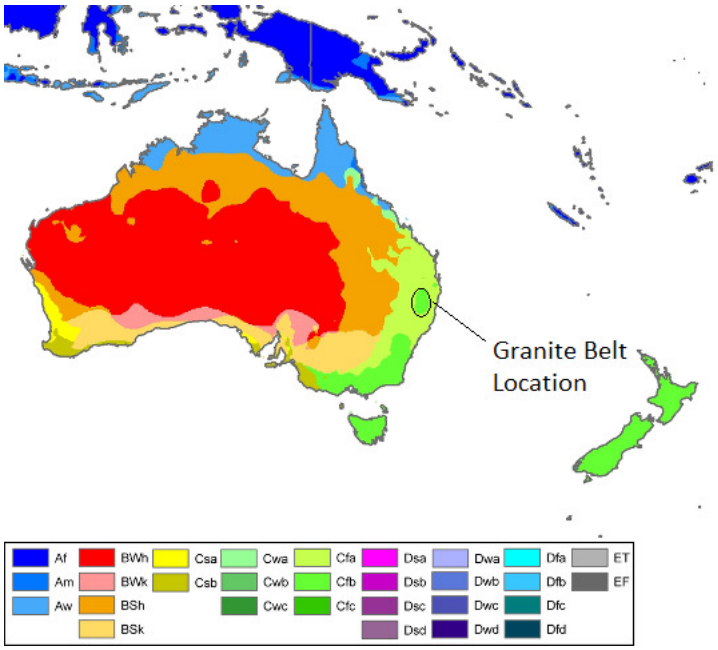
My farm appears to be situated above such a granite slope. In wet seasons the rainwater soaks down through the porous soil until it meets solid rock. It then sheets down the slope towards the river in water bearing sands. Clay for dams is only found in the low-lying gullies of this area. Due to the location of this farm at the bottom of the catchment with Mt. Stirling to the north and a mountain ridge to the west the farm does experience flooding through the gully watercourse when large storms occur.

Unlike other temperate climates The Granite Belt has wet summers and dry

winters. This anomaly occurs because of the *EDGE* effect. Glen Aplin is situated beside the Severn River in a valley west of the Great Dividing Range.

The Granite Belt is positioned in a rain shadow, receiving much less rain than the coastal strip on the eastern side of the Great Dividing Range. Most of the clouds from the Pacific Ocean drop their load before they lift over the mountain tops.





The **Granite Belt** in **Queensland** is located on the northern end of the **New England Tableland**, the largest portion of which is positioned south of the border in **New South Wales**. The region is illustrated in the Cfb green colour of the Koppen map.

- C - temperate
- f - fully humid
- b - warm summer

The **Granite Belt** is situated almost on the 29th parallel south – a circle of latitude that is 29 degrees south of the equator and situated at between 450 m (1,480 ft) to 900 m (3,000 ft) above sea level. The altitude is the main controlling factor for the climate.

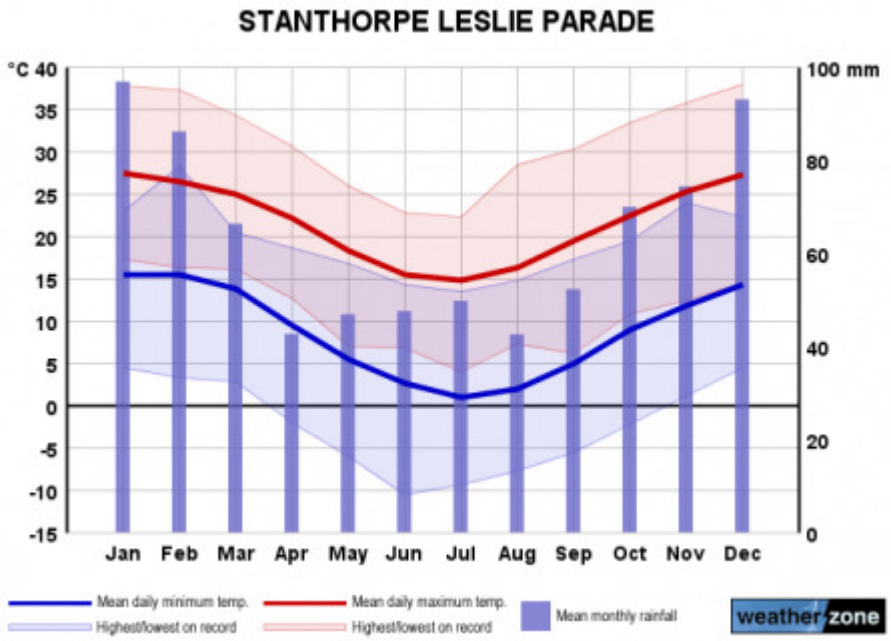
Glen Aplin Latitude: -28.739941 Longitude: 151.874983

Glen Aplin is at an altitude of 768 m above sea level.

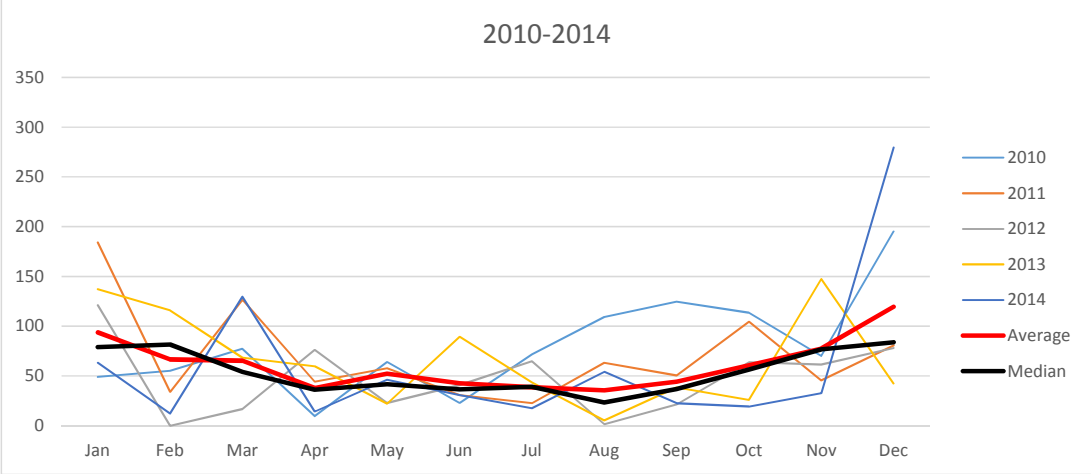
The Granite Belt weather is extremely variable. Stanthorpe's weather presents a wave pattern showing that most rain is recorded in the summer months. The greatest threat posed to agricultural and horticultural crops are hail storms, which usually occur between October and January.

The sun rises at 5.00am on 21st December and sets at 7.00pm. The reverse happens in June with sunrise at 7.00am and sunset at 5.00pm. This is a 4 hour day length difference.

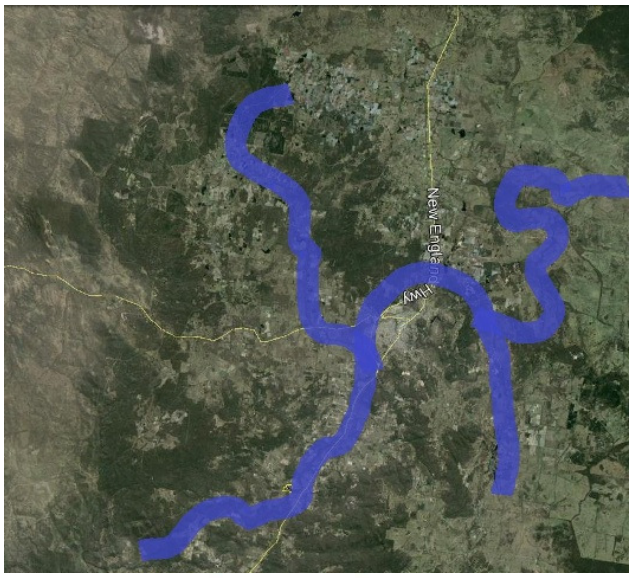
The Polar-jet Westerly winds arrive in August but my farm is sheltered by remnant forest. Our summers are often kept pleasantly cool by easterly or south-easterly winds blowing mist across the Great Dividing Range.



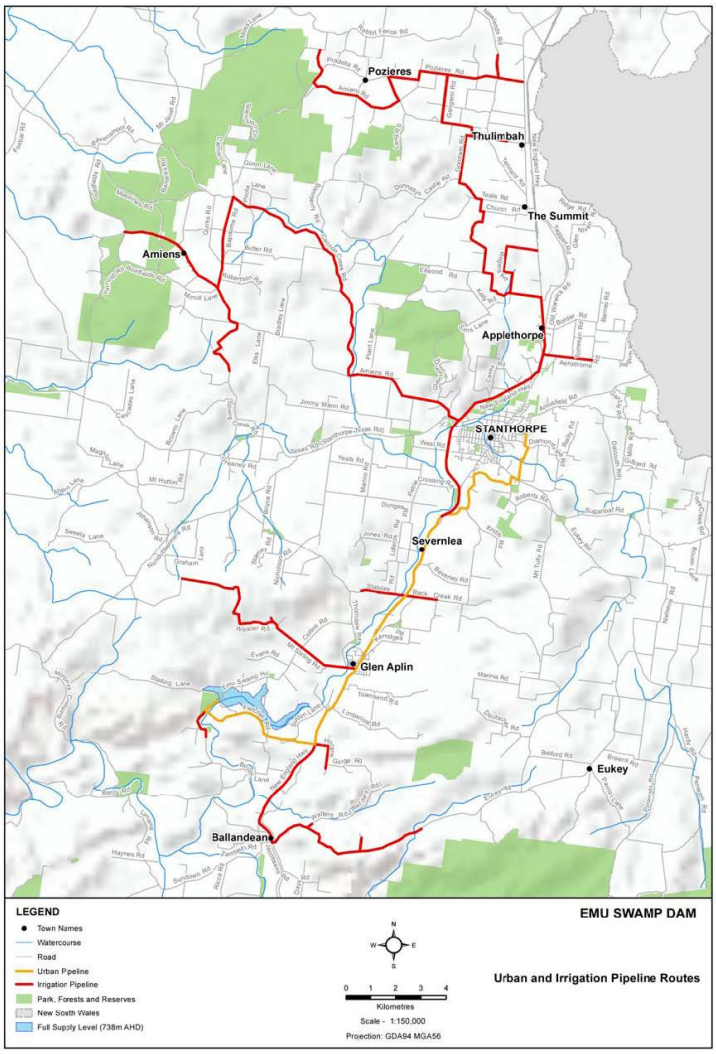
Stanthorpe weather chart



The Severn River is formed by creeks that connect just below the town of Stanthorpe. It then flows south into Glen Lyon Dam and from there into NSW and forms part of the Border Rivers catchment of the Murray/Darling River system.



The Southern Downs Shire Council is seeking funding to build a dam below my farm as a town water reservoir. The aim is to drought proof the town of Stanthorpe offer irrigation water to farmers. It is proposed that one irrigation pipeline will be positioned along my Mt. Stirling Road boundary.



Floods such as the one that occurred in the Severn River in January 2011 happen 2-3 times per century.

The area of land between our largest farm dam and the Severn River was covered in flood water for 2 days in 2011.

THE BRIEF

At the age of 75 I am no longer physically able to manage the work of running an accommodation business and the extended property, but do not wish to sell my home and farm. I am in good health and anticipate I could live into my late nineties as did my parents.

The Brief that I set myself was to note the possible ways in which my property could be developed to establish a number of Livings. I envisage that if younger persons could establish a number of Livings on my land, that it might be possible after a decade (2025) for me to offer them vendor finance to buy my farm as a co-operative group. Thus I would consider offering 3x3x3 year leases to possible Lessees. I would pay for the construction of swales, other structures and the purchase of trees - any item that could be considered an asset.

During the past 22 years I have enlarged 2 existing small farm dams, installed irrigation mains from the river and the largest dam, formed up roads and repaired fences on the property.

I am unable to undertake any clearing of trees or other earthworks in an area now designated on property maps as Remnant Forest due to State Government legislation. However, this land may be utilized to gather timber for firewood or to graze livestock.

My late husband was German born and I have visited Germany a number of times. I was fascinated by the manner in which villages had been established as a cluster of houses with the farmers going out from the village to work their small sections of land. It is this land use concept that I consider could be practised by Lessees living in Glen Aplin while sharing the use of my land.

1: Wolferborn, Hessen, Germany

1. I do not wish to sell my farm and move into a retirement village for at least 10 years.
2. I am presently capable of managing the Zone 1 garden with the assistance of Wwoofers, but not the maintenance of 32 acres.
3. I would like to avoid the necessity of bushfire hazard reduction burning of grass and forest land each year.
4. I recognise that many young people are unlikely to be able to afford to buy a farm and I am offering to make it possible for ethical persons to utilize my land to assist them to achieve their dreams.

My aim has been to note the possible manner this farm could be developed to establish a number of income streams.

The village of Glen Aplin is 1km from the entrance to my farm. The village has a State primary school with 75 children, a daily bus link to Stanthorpe, a community hall, church, service station, convenience store, post office, Country Women's Association and a Bushfire brigade. The district enjoys a good community ethic of working together and in recent years held quarterly markets to raise money to renovate the hall.

I consider that the proximity of my farm to the village of Glen Aplin offers all the advantages of living within a village community which I witnessed in Germany.
I believe that no portion of my land would provide sufficient income for a full Living for a number of years while in the establishment period, hence my willingness to allow Lessees time to bring their dreams to fruition. Equally, if they do not wish to continue with the arrangement they will be free to give up the lease.
I believe only those persons willing to live within close proximity to my farm should consider taking on a lease, because of time and costs associated with travelling distances. Lessees could rent or buy a home in the village of Glen Aplin or stay in one of the two large Caravan Parks situated within 5 kilometres.

Casual hourly work is available at the orchards, vineyards, vegetable fields, mushroom farm and tourism businesses of the Granite Belt for those wishing to earn additional income.

Each Lessee, prior to accepting a lease of a portion of my land, would be required to present me with a business plan showing how they intend to establish an income from the farm.

ZONE SUGGESTIONS

I have lived on farms all my life and learned to read my land. As result I have proposed several ways in which my farm could be divided into Permaculture zones to be utilized by Lessees for different purposes.

ZONE 1

In 1992 when the property was purchased the living area existed as a 2 bedroom house in the Australian homestead style with an overhanging veranda on the east and western sides of the house and a solid wall on the cold southern side. In 1993 we extended the structure north and west to create a 4 bedroom guest wing with large dining room. Verandas protected the southern and northern walls of this structure, with a solid wall on the western end. I planted Northern Hemisphere deciduous trees on the northern side to give shelter from summer sun, but to allow the winter sunshine on to the northern veranda. This deciduous forest has an understory of shrubs such as fruiting Elderberry bushes beneath large Maple trees with a ground cover of flowering bulbs. When establishing this garden it was my aim to have flowers for the guests to enjoy every month of the year. There are no lawns in this garden and ground covering plants have been used extensively.

With the exception of the front entrance path which was laid from recycled bricks, all other paths were excavated to place the topsoil in raised garden beds and the cavity filled with river sand. The paths have been laid out on the contour of the slope so that storm water does not run off, but soaks through the sand and into the garden beds.
The front veranda of the main house and the veranda of the apartments face the east and enjoy a spectacular view across the valley.

To the west of the house the ground was terraced and in the lower area an out door clothesline was installed, with recognition that the covered verandas at the rear of the house would also serve for hanging washing during inclement weather. In this low area I established a kitchen garden of herbs, berries and deciduous fruiting trees including 4 varieties of figs, as these would provide shade from the western afternoon sun during summer months but allow the maximum light during the winter months.
This guest wing, constructed in 1993 has 4 double bedrooms.

In 1998 we constructed 4 guest apartments linked to the main house by a covered walkway on the upper terrace. There are solid brick walls between apartments and at the northern and southern ends to prevent a possible fire spreading between apartments and for sound proofing. It was recognised that guests would be outdoors visiting wineries or national parks during the day so would most likely only be using these units overnight. They were designed with French doors opening on to the veranda to benefit from prevailing cool afternoon and night breezes from the east.
The veranda overlooks the garden.

A wide overhanging roof was extended on the western side over the car parking area to provide shelter from hail storms and against the heat of the afternoon sun. In each of the 4 apartments a wood-burning, combustion stove was installed for heating with a reverse cycle overhead fan. It must be remembered that the Granite Belt is the coldest district in Queensland and winter is the peak time for tourism. This region is a weekend destination for guests who wish to enjoy the cold experience of a wood fire.

Less tourists visit the Granite Belt in summer months when Queenslanders traditionally take beach holidays. Yet it is during the summer and autumn months that accommodation is in short supply for International backpackers working in the district fruit orchards and vegetable fields,
In the years 2006 to 2013 (by temporarily replacing bedding) I converted these apartments for 5 months each year into hostel accommodation for Korean backpackers.

To service my living area, the needs of tourism guests and backpackers additional rainwater tanks were installed to collect and store runoff from the large roof area. The latest of these tanks were positioned in July 2014.

I can store 215,000 litres of water in 8 rainwater tanks.

By the time that the apartment complex was constructed in 1998 I had lived on the property for 5 years and had realized that in wet seasons the water was moving underground from the higher rocky hillside between the house and Romeos Lane in water bearing sand. Because it was intended to provide a covered concrete slab for car parking, agricultural drains were installed along the northern fence of Zone 1 to collect underground water and divert it east or west, according to the slope of the land. The largest proportion of this intercepted water is drained under the entrance road to the area proposed as a Zone 2 vegetable garden.

I believe any renovation of my home and accommodation complex would cause unnecessary expense.

These buildings are constructed of Cypress Pine and hardwood timber grown in Queensland, with rainwater tanks, sewage and grey water facilities. They have electricity connected, plus bottled gas is used for heating water and some cooking appliances. The buildings are designed to benefit from cool afternoon and night breezes during the warmer months, while wood burning stoves are used for winter heating. It should be noted that night temperatures on the Granite Belt rarely stay above 20°C in the summer and may drop to -10°C in the winter. Air conditioning for cooling is not required.

I extended the garden in 1996 to include a Remembrance Field of Flanders poppy which bloom each year for 11th November. Admission to view the garden and the field of poppies is free to the public. This has become a tourist attraction.

I live in the original house, which is now like a 2 bedroom apartment attached to the accommodation complex.

I recognise that many PDC graduates lack their own farm or facilities where they could host students while conducting a course. I would be willing to lease to a PDC teacher the guest accommodation which includes 4 double rooms and 4 self-contained apartments, plus a kitchen and dining room. Such a lease would be priced to cover costs at such times as a PDC teacher could assemble a group of students.
A PDC teacher could also earn income by pursuing one of the other options by leasing a segment of the farm should they wish to do so. Alternatively a PDC teacher from another region might merely wish to take advantage of the facilities available.

I presently produce jams for sale from figs, grapes, mulberries, boysenberries, raspberries, strawberries, rosellas and mandarins grown in my garden. I have a number of Pecan nut trees and have found that they particularly like the climate and growing conditions of this region. I have supported the Glen Aplin quarterly community markets by selling vegetables, cut flowers and plants from my garden plus value added items such as jams, dried figs, herbs and pecan nuts.

I have planted a number of stone pine trees and olive trees. Nearby, Mt. Stirling Olives undertakes the processing of olives for district farmers.

ZONE 2a

This area is traversed by a side road to the rear of the apartments and is situated immediately above the garden of Zone 1.

At the rear of this block of land two containers are positioned as storage sheds. They were painted green and surrounded with young Casuarina trees for beautification.

I believe that this would be an ideal position to set up a plant nursery and use the out door section of Zone 1 as a garden centre. The garden of Zone 1 offers a display of plants that may be grown in the district and propagation material for an experienced nursery man. This garden was designed to allow guests to wander the paths. During Open Garden days it has suffered no damage when hundreds of visitors strolled along the river sand paths.

A water main capable of delivering irrigation water from either the large dam or the Severn River crosses this field thus enabling a regular supply of water to a plant nursery.

The grassed section of Zone 2 has provided car and bus parking since 1996 for visitors to the annual opening of the garden and Remembrance Field of Flanders poppies.

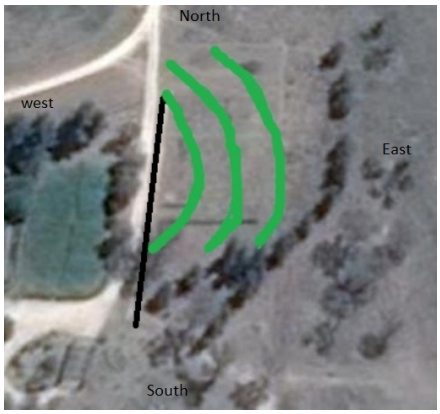
The plant nursery could undertake the propagation of trees, shrubs and other plants for the planting of swales throughout the property. As the zones became established Lessees could welcome visitors every Saturday and Sunday to enjoy the property while buying plants, produce and handicrafts. Market stalls could be set up along the northern fence of the Zone 1 garden on sunny days or positioned under cover of the verandas of the homestead and apartments during inclement weather.

Boxed fruit and vegetables could be supplied on order. Attached to the western veranda of the house is a cold room which could be used to keep some vegetables cool and fresh during the summer months.

ZONE 2b

In 1992 an old plum tree orchard was situated on this area across the entrance road from the Remembrance Field. We had this land cleared and grassed.
There is already a water main installed above this field which could provide irrigation water from either the large dam or the river. Shallow swales could be constructed to collect run-off water from the hard road surface, plus water seeping down through the agricultural drain along the fence separating the Zone 1 garden and Zone 2a.
In addition to the hydration provided by run off rainwater the garden could be drought proofed by using either dam or river water delivered to the swales by the existing water main.

I believe this area should be used for the production of vegetables for sale at the weekend markets.



Bushy shrubs like gooseberries or rosellas could be grown on the swales with vegetable crops planted between these raised mounds. This is perhaps a venture in which all Lessees could participate along the lines of a community garden. There is a great demand for rosella fruits to be used for jam, red tea or as preserved hibiscus flowers in sparkling drinks.

The crescent shaped portion of rocky land below the proposed vegetable field already has a number of established Eucalyptus and Radiata Pine trees and could be developed as a woodlot. The pine trees were planted 20 years ago. Additional timber, firewood and nut trees could be planted in this area which is too rocky for any form of cultivation. I do not anticipate that such a wood lot would provide a Lessee with income and may be a project I could pursue with the assistance of Wwoofers.

A substantial amount of run-off water drains from the channel on the western side of the entrance road, under the road into a large wide drain to spread on to the grassed land. This drain could become the starting point of a swale that would carry the water in a loop above the pines, while a second swale could swing between the pines and the eucalyptus trees. A third swale starting on the far side of this rocky outcrop could pass below this woodlot to hydrate the lower pasture land.


A small section of this rocky area, situated beside the large grape trellis of the Zone 1 garden was planted with Stone Pine trees in 2011. Short swales could be constructed on this site and additional trees planted.

ZONE 2c

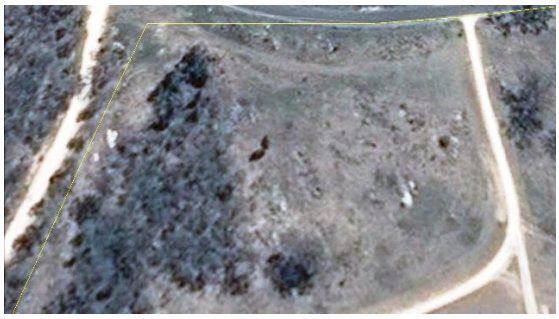
During my years of providing dinner, bed and breakfast to paying guests I raised ducks and geese for meat and kept hens for eggs.

I believe that a Lessee could keep a flock of ducks in the existing duck pens close to the forest of Zone 5b where in times past I housed up to 80 ducks. They must be secured at night from fox predation, but can be free-ranged down to the largest dam during daylight hours.

A Lessee managing free-range hens for egg production could utilize trailer housing/chicken tractors in conjunction with electric fencing, which would enable the hens to be moved to other positions on the property if desirable.
I have always composted poultry manure for use in my home garden.

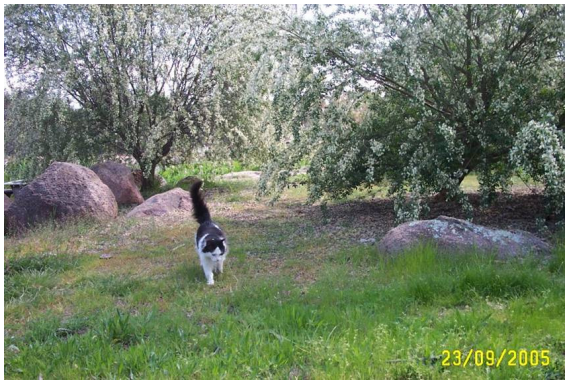
ZONE 3

There is an interesting slope between Mt. Stirling Road and a low rocky hill adjacent to the Zone 2 parking area that begins at the corner of Romeos Lane. The corner portion of this area does not gain water from the junction of the roads, but water does begin to surface where the remnant forest juts out. Below this point the ground oozes water during a wet season which is collected in the drain along the western side of the entrance road. I believe more boulders should be moved off this slope and swales constructed across the slope.



I believe that the construction of swales would keep this slope hydrated but if necessary in time of drought the water main across Zone 2 could be extended.

Another alternative would be to install a second solar pump at the deep pond directly below and take water to the top of the slope to be fed into the highest swale.



I would like to see these swales planted with flowering trees for the purpose of honey production. Herbs such as Rosemary, Basil, Italian parsley and Coriander could be grown as ground covers.

Two multipurpose trees that do particularly well in this granite soil are the fast growing Tagasaste and slower growing Kurrajong, both of which may also be used for animal fodder.

The rocky hillside beside the proposed swales could be planted with more Tagasaste, Stone pines, Olives, Pomegranates and Carob trees.

Bee hives could be positioned at the back of this hill in the shelter of the remnant forest. Honey, bees wax candles etc. could be sold at the weekend market in Zone 2. Hives could be rented out to district farmers for pollination of stone fruit and vegetable crops.

I foresee a future threat to both European honey bees and the Australian native bees. The native bees are nectar gatherers, not pollen gatherers and prior to white settlement there wasn't much pollination of the eucalyptus flowers by bees. Therefore there wasn't much fertile seed drop. Then due to aboriginal burning not many seedlings survived.

Girraween National Park was so named because the word Girraween meant wildflowers in the Aboriginal language. Bald Rock National Park was originally a cattle property. Now there is no grass for cattle at Bald Rock due to the proliferation of eucalyptus trees. The wildflowers at Girraween are also threatened by the increasing canopy of eucalyptus trees. These wildflowers have been a source of nectar for the native bees.

Early photographs of the Granite Belt show widely spaced eucalyptus trees. Many of these were large trees with hollow limbs. These hollow limbs were colonised by the European bees. They were welcomed by the settlers as they pollinated vegetable and fruit crops. As pollen gatherers they also fertilized the eucalyptus blossom, leading to a mass of fertile seed and resultant seedlings. The settlers cleared the agricultural and pastoral land, but allowed the trees to flourish on the hills.

The result has been a proliferation of eucalyptus saplings.

In 2002 I witnessed a bushfire race across the hills on the eastern side of the Glen Aplin valley.

This fire started south of Glen Aplin when a strong Westerly wind brought down a power line. The wind blew the fire across the highway and along a gorge road where houses were burned and a woman lost her life. That night the fire came up the western side of the Severn River. The Bushfire brigade lit a burn back fire above the entrance road and behind our house with the aim of protecting all property north of Mt. Stirling Road.

Many of the old eucalyptus trees in the remnant forest caught fire and burned like chimneys until they crashed to the ground. That bushfire turned with the wind and burned back to Girraween. It burned for 6 days.

My grandfather told my father of seeing this border country as open forest. It changed so rapidly that my father only remembered the country as heavily timbered with young trees.

Bushfires don't kill young eucalyptus trees. They lose leaves, but will regrow again. I anticipate that the remaining old trees in the Granite Belt forests will catch fire and burn either during hazard reduction burns or during wild fires. As they are destroyed so will be the present nesting hollows for birds, possums and bees.

I fear that we could see within the next 20 - 30 years the decimation of the wild honey bee population right along the length of eastern Australia as these old trees come down due to age, storms or fire.

When that happens and the farmers say there aren't enough bees about to pollinate crops, people will probably blame insecticides. They will still be seeing dense forests of eucalyptus trees without recognising that those forests no longer contain any aged trees. They won't make the connection.
The dense canopy of the eucalyptus forests will decimate the lower growing wildflowers which have fed the native bee, possibly threatening them with extinction.

Just as bushfires now threaten homes in the Blue Mountains or anywhere else that the eucalyptus forests have increased in density, they also threaten the habitat of the wild European honey bee. I believe this as a disaster which could creep up on our Australian population without warning.

ZONE 4

The field beside Romeos Lane on the western side of the farm has a slope down to the south and east. In this photo two young boys are assisting me to determine the slope of the Romeos Lane road using a Bunyip water level. This length proved to have a fall of 3.5 metres over 155 metres.

At the point where this road divides, the direct portion falls sharply away with a 1.5 metre fall over the 45 metres length adjacent to the farm. The Council have drained run-off water from these two culverts into the low corner of this field. While this appears to be an ideal position to place another pond, it will be necessary to undertake soil tests as earthmovers might encounter sheeting rock this high on the slope and it is unlikely that they would find sufficient clay to line a pond.

Consideration could be given to trenching, then mixing Bentonite into the soil to create a clay core under and within the main dam wall. Pigs could be allowed to wallow in any muddy water that remains in the depression if the dam should subsequently prove porous.

This storm water run off encounters a rocky ridge at the tree line of Zone 5 and veers off to the south across the neighbour's farm land to reach the river.

This corner is the lowest point on the highest boundary of my farm.

Historically this field was once a plum orchard, but has been grassed for 22 years and is fenced off from the remnant forest of Zone 5. The field could have swales constructed to pick up some of the water draining off the hard road surface. If a dam could be constructed at the lower end and it held water a solar pump could be installed to lift water up to the highest swale to slowly drain back down across the field to the dam.

The fact that this field once grew productive stone fruit trees without the benefit of irrigation indicates that as water soaked into higher ground and moved in water bearing sand towards the lowest point the trees must have been able to access sufficient water to survive and establish a root system.

I believe that if this field was properly surveyed and swales constructed this would be an ideal field for the establishment of a cool climate food forest, in particular stone fruit, apple and pear trees.

ZONE 5a

I believe that this portion of my farm could best be utilized by pigs. Secure perimeter fencing would have to be constructed, but electric fencing could be used to cell graze them or to contain them within remnant forest sections. It is possible that they could be used to cultivate the field in Zone 4 along Romeos Lane.

There are times when the water table on the grassed area immediately behind the apartments rises to the surface due to the amount of water which pours onto this field from Council drains at the corner of Romeos Lane.

This water saturates the ground down to a rock sheet before gradually seeping away in water bearing sand in a south-easterly direction towards the Severn River. Because this is moving water it is not stagnant and sour. Pigs could be used to cultivate the soil, after which the area could be properly surveyed and swales constructed.

If swales were constructed across the field the raised earth could be planted with trees. In dry periods they would drop their roots down to intercept the moisture and in wet periods their roots would remain oxygenated.

Trees such as Walnut, Chestnut, Pecan nut trees and English Oak trees would thrive in this situation. Both English Oak and Pecan nut trees grow adjacent to my home garden and the adjoining Remembrance Field. I have observed Walnut and Chestnut trees thriving in this district.




ZONES 5b & 5c

The use of these two zones could be combined. The Remnant Forest area is securely fenced along the lines designated by the orange marker. A Lessee could use this portion of the forest to shelter a herd of Boer goats. An enclosure and loading race already exist, adjacent to the duck pens, where goats could be handled or penned at night.
The pen with the loading race opens into this remnant forest paddock. The goats could graze under the canopy of this forest which would eliminate the need to burn this paddock each year to prevent bushfires.

Water is already piped to this area. By using electric fencing the goats could also be allowed to cell graze sections of the low grass country and the river frontage

The northern boundary of the farm has its lowest point adjacent to the drains the Council installed under Mt. Stirling Road to convey the water flowing down the valley.

It would be possible to construct another dam on this site.

This length of grassland could be surveyed and a series of long swales constructed across the slope above the existing dams and the watercourse which links these two water storages.

Improved pasture grasses could be planted between the swales or Lucerne grown for hay.

If swales were constructed within this grassed region additional upright willows could make up a proportion of the trees planted along the swales with their purpose intended for firewood production. Willows make their growth in the summer months when rain is most likely to fall and become dormant in the drier winter months. Thus they are unlikely to rob the pastures of moisture. Presently I am cutting this grass to use as mulch on gardens in Zone 1.

I have established several species of deciduous trees beside the dams and along the water course between the dams. These trees were planted to provide autumn colour for the pleasure of tourism guests. Autumn colour is an attraction for Queenslanders living in tropical and sub-tropical regions of the State. I recognised that the roots of upright growing willow and poplar trees along the watercourse between the deep pond and the larger dam would stabilize the earth banks and prevent erosion. These willows could be coppiced for firewood.

Due to State Government restraints imposed on farmers within this region of the Border Rivers catchment of the Murray Darling Rivers system the water engineers planning this watercourse designed it to enable water to flow past the larger dam and continue towards the river. When the stream of water in the channel becomes stronger and the level rises it then overflows to spread across an area of grassed land into the dam.

Water in the channel that flows past the top of the dam spreads out behind the dam wall and continues across a wide swath of grassed land until it reaches another deep channel beyond this dam, from whence it flows down to the river. The ground between the dam wall and the neighbours fence remains hydrated at all times allowing a constant seepage of water into the deep channel even in dry periods.

This deep channel also accepts run-off water from the neighbouring farm where the fields produce vegetable crops. When the yield drops and it is no longer commercially viable to harvest the vegetables the neighbours move their cattle on to these fields to eat the crop residue. All water moving down this valley watercourse is likely to contain traces of commercial fertilizers and animal manure. The mass of reeds which grow in this deep channel assist in cleansing the water before it enters the Severn River.

After heavy storm rains the flood water streamed into the largest dam so quickly that it would overfill and overflow at the wide end. A second wide and shallow waterway was constructed in 2002 to prevent erosion from this water dropping down behind the dam and into the deep reedy gully. This extra waterway is now well grassed.

When planning this dam I wanted tourism guests to sit on the homestead veranda and look down the slope to a lake of water – a tranquil view. Therefore the dam was built in a boomerang shape. I planted deciduous Spanish oaks on the low ground behind this dam wall.

Due to hydrology pressure moisture feeds through the wall encouraging the growth of these trees. It is clearly apparent that the water is moving out to the trees, rather than the trees putting their roots through the wall, as the greatest growth appears where the weight of water is the heaviest.

I prefer to irrigate my garden by using the solar pump which was installed at the dam in 2011. Prior to that date I used a petrol powered pump at the river to reticulate water to the garden and Remembrance Field. I possess an irrigation license which entitles me to draw water from the Severn River to irrigate 10 acres (4 hectares) but I have never farmed this land.

Any Lessee with knowledge of aquaculture might see this abundance of water as an opportunity to establish fish ponds. Another Lessee may propose growing aquatic plants.

SUMMATION

I expect to be able to maintain Zone 1 of this farm – the home garden and Remembrance Field with the aid of Wwoofers for at least another 5 years.
It is my hope to be able to continue presenting the field of Flanders poppies as a tribute to the fallen of all wars until the year 2020 which will be the centenary year of when the soldiers returning from World War One settled on the Granite Belt.

I have only been able to maintain the fertility of the soil to produce this yearly display by growing and ploughing in summer crops for green manure or buying in organically certified compost. After 2020 this field could be rezoned and included in the Zone 2b vegetable garden.

I recognise that due to the Edge climate in this region the district may experience heavy deluges of rain accompanying storms from the inland or east coast lows. The location of this farm at the lowest point in a hard, rocky catchment places it at risk from flood damage causing soil erosion across the lowest portion. Therefore it is wise to keep it well grassed, but due to the threat of bushfires excess grass must either be cut for hay or burned.

I recognise that it would be possible to construct additional dams and ponds on my land, but have not undertaken the expense because I have no need of extra water for any farming purpose.

Upon the death of my husband I looked at the history of intentional eco-villages and recognised that some failed because they had insufficient arable land, or water, or were situated too distant from markets and community facilities. I was interested in what Geoff Lawton had to say about Land Trusts.

It is for this reason I have suggested I could lease portions of my farm to a Lessee interested in undertaking an activity on any zone of my farm, who was willing to live off-farm in the township of Glen Aplin. I do not wish to increase my present retirement income, thus enabling me to place a minimal price on a lease. I would use lease payments to finance farm improvements.

While I have made suggestions about possible uses of the Zones throughout the farm along the lines of animal husbandry and horticulture with which I am familiar, I am open to other suggestions from Lessees who may have experience within different enterprises. For instance other persons may see the abundance of water as providing an opportunity for them to install an aquaculture system.

A requirement of any person wishing to become a Lessee would be that they had had completed a PDC and could present me with a Business Plan covering their proposed use of my land. A legal contract would ensue.

It would be expected that any Lessee interested in taking up one of the options may have other contacts within the larger Permaculture community and would set out to attract like minded persons to investigate the possibility of joining in such a proposed intentional community.

I believe that within ten years my farm would become an inspiration to other farmers because of the manner that Lessees practicing Permaculture had transformed a rough hillside and flood prone low country into a productive model farm. It would be an example of committed persons imbued with Permaculture ethics working together for the improvement of the land and enrichment of the community.