ARIZONA CHICKENS

A permaculture design (not fully implemented)

Abstract

This is a subsidiary design of the framework design for 7338 E. Clovis Avenue, Mesa, which looks at integration of backyard chicken –keeping into the overall design for the property.

Samantha Woods June 2015 - May 2017

Reflection on the Background and Scope of the Design

This is a short design which fits into the Framework Design for 7338 E. Clovis Avenue and looks at the placement of the chickens in the overall system. It has not been fully implemented/evaluated.

Between 2011 and 2016 I was in a relationship with Simon Reboul, which I was planning to be a life-long commitment. This didn't work out in practice and we split up in 2016. However, by that time I had already done a lot of work with him on creating a permaculture design for his house and garden and I had plans to create a whole series of subsidiary designs within the Framework Design, which forms part of my Diploma portfolio.

After Simon and I split up, I was tempted to tear up all my Arizona designs and start from scratch with new ones but after a year of deliberation, I decided to include them. This is because I learnt such a lot from working in a dryland environment and did so much research, it seemed a waste to abandon this and contrary to the permaculture principle of producing no waste (David Holmgren). I am still incorporating elements in my teaching, for example, that are drawn from the experience of designing within the Sonoran desert environment, particularly solutions that have developed by local permaculturists, such as Brad Lancaster. His work continues to be an inspiration and his techniques (such as holding water in the landscape through berm/basin designs), whilst being specifically a response to the climatic conditions of Tuscon, Arizona, have relevance in any area where there is a need to slow the flow of water and allow more infiltration/less run off.

So, despite the sadness I feel at the ending of our relationship, I am really grateful that I had the opportunity to work in a really different environment from my usual urban, UK setting.

This particular design was partially implemented, as Simon did acquire chickens whilst we were still together and this was informed by the thinking that went into the Mind-mapping but I have gone beyond what we actually achieved in practice. I have included my own vision of how, had I been the client myself, would have liked to develop the back-garden to incorporate chickens. Simon's original flock were mostly picked off by predators and at the point where we split up, he only had one chicken remaining. I don't know what has happened since; whether he has bought a new flock or whether he has given up having chickens.

This is a land-based design but it is ultimately my fantasy design and will never be implemented. In a way, it is a metaphorical representation of what I had hoped for in my relationship with Simon and inevitably, I feel a sense of failure and sadness, as I write this. There is a piece of my soul buried in this design and undercurrents of both Zone 00 and Zone 000. I am not sure that I want to expound these in the cold format of a Word document because it still feels raw. One of my barriers as a permaculture designer is how hard I find it to keep things in tidy boxes and clearly labelled frameworks and this is particularly true of this design. There's a lot of *my Self* in this design and it makes me feel exposed and vulnerable to put in my portfolio but at the heart of this design, there is a lot of love; of nature, of humanity with all our failings, my love for Simon and my love for myself.

The Scope of the design was to integrate chickens into the back yard and choose a placement and design for the chicken house/ enclosure, along with the creation of foraging opportunities.

Design Process

This forms a more detailed part of the Arizona Framework Design and uses the same kind of OBREDIMET approach. However, since it will never be implemented, it would be more accurate to

describe the process as OBREDIM. Some elements were implemented, such as Simon joining the Phoenix organic feed bulk buying group but I have no idea whether he has continued any of these ideas since we split up so I will stick to the OBREDIM stages.

The Framework Design covers much more detail on each of the design stages taking into account the site as a whole.

Design Tools – see A3 portfolio case.

- Scale Base Map
- Mindmap of Input/outputs and other things to think about
- Analysis of Ethics and Principles
- Planning for Real

Design Outputs

- Map showing proposed location of chicken house (A3 portfolio case) and other elements
- Outline of proposed culling regime
- Planting plan for foraging plants

OBSERVATION

Site observations and the overall boundaries and resources are contained in the Framework design and are not reproduced here.

The Chicken Mind Map (see original in A3 portfolio case) is an overview which encompasses:

- Overview of issues arising from having chickens
- Inputs and Outputs and thoughts about these
- Functions and elements to consider

The Base Map

Show the existing location of elements in the back garden as at 24th June 2015. See A3 portfolio case. This is a photo of the base map:

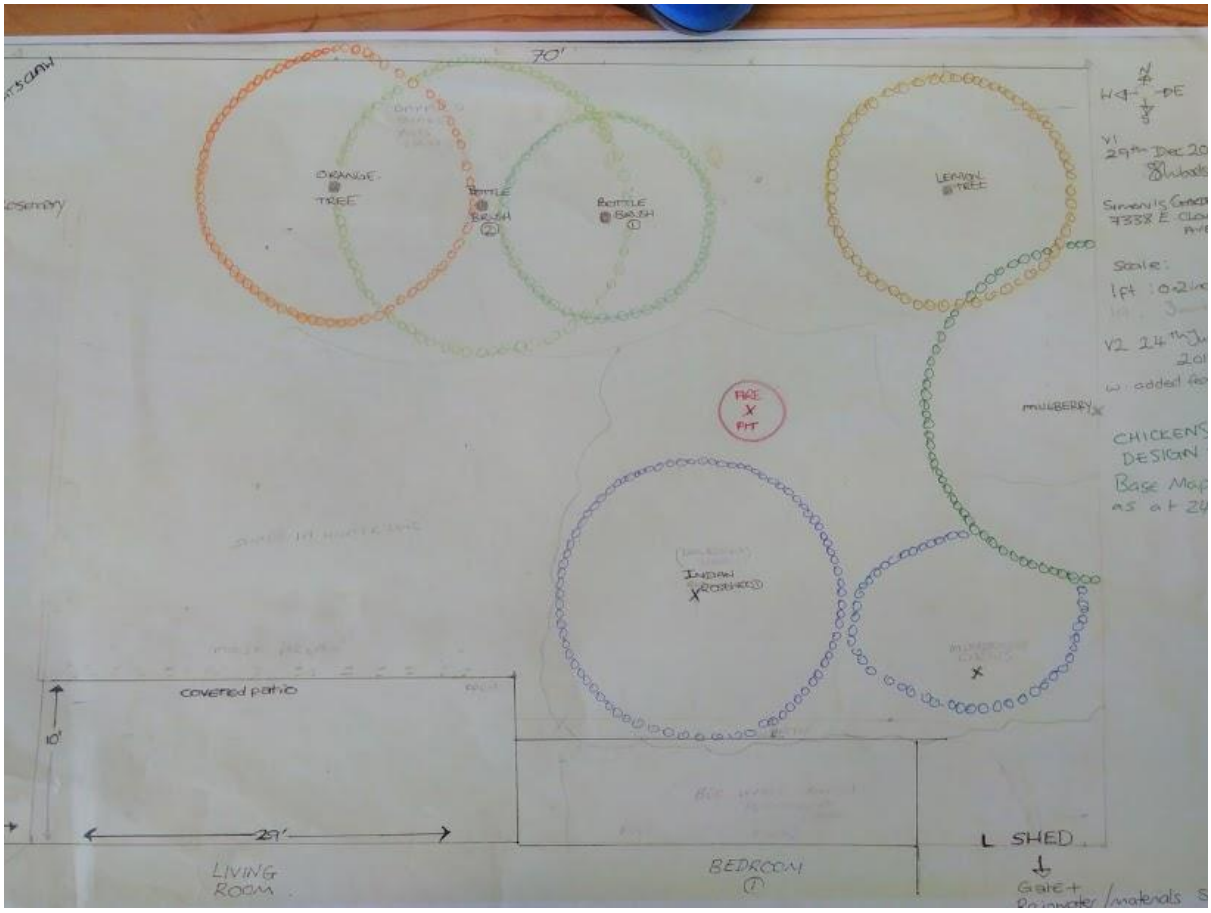


Figure 1Scale Base Map June 2015

Boundaries

Plant Research

Working within the boundaries of the alkaline, clay soil type, high temperatures and low rainfall (approx. 11 inches per annum) and monsoon-type rain events (see Framework design for more detail), plants were researched which were suitable for planting under these conditions and would provide necessary functions such as shade, shelter or food for the chickens.

Breed Research

Working within the climatic boundaries and the desire to have a breed which was dual purpose and heat tolerant.

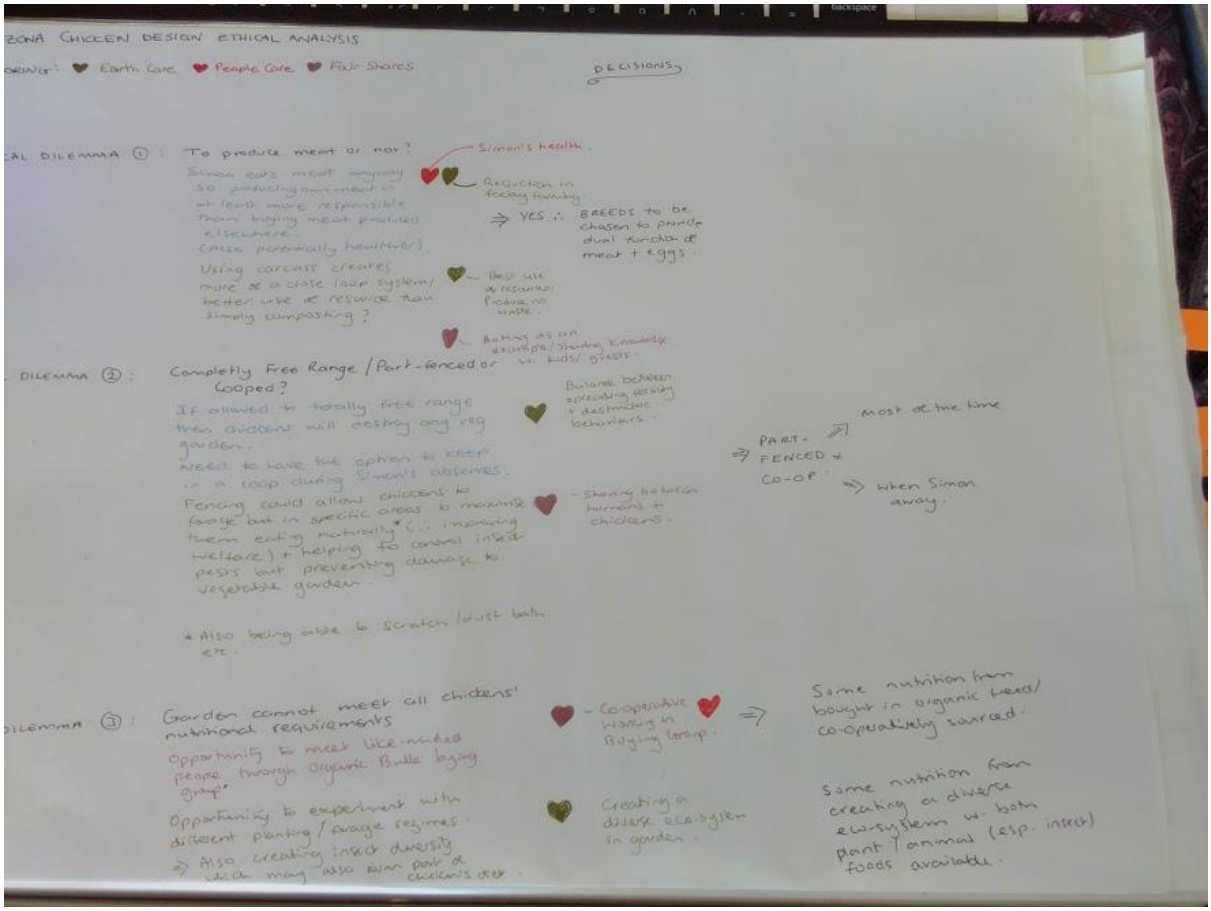
Boundary Type	Boundary	Comment
Physical	Walls and fences and existing plants	The back garden has breeze block walls and two access gates, one on the east side and one on the west side of the house. The line of trees at the back of the garden limits the height of a potential chicken house in that area.
Physical	Rainfall and Hot Summers	Rainfall is about 9 inches per year but falls as storm rains during the Monsoons. It is very important to create shaded areas due to the excessive heat. Also we needed to buy heat tolerant breeds.
Time	Simon works full time.	This is not generally a major issue as he can check welfare before and after work. However he is also in England or other holidays and so has arrangements with neighbours and friends to provide for the chickens in his absence.
Financial	Limited funds available	In my fantasy design I have pretended that there were unlimited funds to create the perfect chicken house and run. In reality, we could have spent time looking for recycled, second-hand or re-purposed materials,
Legal	Local laws.	There are some stipulations relating to activities on private property, including keeping chickens although nothing we wish to do is prohibited.

Resources

Resource Type	Resource	Location/ Abundance/ Other Comment
Financial	Primary – Simon's Income	Simon's job is fairly secure and well paid so he has enough money to be able to create the initial set up and maintain the chickens on a high quality diet.
Support from Organisations	Valley Permaculture Association (VPA) Water Management Group (WMG)	There are a lot of sources of information and support locally in the Phoenix area and lots of knowledgeable people. The VPA and WMG both run a variety of classes and events, which provide information and training on various aspects of Permaculture in the Sonoran desert. Every year the VPA run a Tour de Coops, which means people can see chicken systems

	Arizona State University (ASU) Desert Botanical Gardens Maricopa Master Gardeners programme	in operation. There's also a lot of advice available for growing foraging systems. The ASU has lots of botanical information, as does the Desert Botanical Gardens and they have been helpful in assisting us to identify the existing plants at the property. The Maricopa Master Gardener programme publishes a manual on line and runs classes, which contains locally specific information on growing edible plants.
Supplies Continued	Mesa Feed Barn Organic Feed Buying group Peaceful Valley Farm (online) Home Depot/ Lowes Valley Transport	Straw and chicken Feed Supplies. Also possible source of cheap pallets. Co-operative buying group. Based in California runs the Grow Organic website – we have used them as a seed supplier. They provide the Forage Mix and other useful seeds. We have got all our garden tools from Home Depot or Lowes locally. We have tried to go for reputable makes and solid tools which will last. American tools tend to be a different design to UK tools but are generally very nice to work with and well suited to the conditions here. Generally we are very car dependent here but Sam does use the bus or bike where possible and the light rail system is being extended towards Mesa, although it won't come quite as far east as where we live.
Natural	Trees and plants in Garden Climate Wildlife	Already provide some shade, habitat and wood for construction and fires. Also a few culinary plants (such as the Rosemary) The hot dry climate provides ample sunshine for growing vegetables and powers the solar panels. Lots of bugs and insects in the Garden to provide extra food for the chickens.

EVALUATION



The ETHICAL analysis looks at three different issues from the perspective of the permaculture ethics of Earth care, People care and Fair Shares. The first issue relates to whether to have a meat production system or egg only or dual system. This was easy to resolve as Simon eats meat anyway, as well as lots of eggs – so choosing breeds and establishing the system for both meat and egg production was the obvious choice.

The question of whether to allow the chickens to completely free range was a source of conflict between myself and Simon. In reality as he did have a totally free range system and this adversely affected the establishment of vegetable growing areas. In this design, I have opted for a part-enclosed system and the establishment of fenced/hedged areas. Ideally, this would be similar to a reduced version of a regenerative agriculture approach with the chickens being moved on from one area to another and the vegetation being allowed periods of time to re-grow. However I am not sure that there was enough ground space at Simon's to allow them to be moved on to fresh forage often enough – so there would have to be a balance between them having access to live foraging plants and being fed bought in organic pellets. This was the third ethical dilemma – whether or not the system was large enough for the chickens to be supported without outside inputs. It wasn't but the good thing about that was that it opened up the doors to becoming part of a local cooperative feed-buying group. So overall, the keeping of the chickens did not breach the ethics of permaculture.

Figure 2Chicken Mind Map

There were other ethical decisions that I could have looked at in more detail- such as the construction materials/ source of the hen house but Simon had very clear ideas about how he wanted it to be designed. We could also have looked more at the issue of where he sourced his chicks as he bought them from a commercial supplier. He bought them as chicks, so he did end up with a rooster, which wasn't his intention. It was never part of the functions for Simon to breed his own chicks as part of the rearing/culling regime was intended to fit with extended trips abroad. This probably wouldn't have worked in practice as it was unlikely that trips would always have coincided with the optimum time for culling the flock.

More details on the ETHICS and PRINCIPLES applied in the design process can be found in the framework design but some key principles at work here:

1. Produce no waste – using the chickens for both eggs and meat, compost production/fertility (both from excreta and carcasses) and multiple functions such as use of the chickens for pest control means that there is little or no waste in the system.

2. Creatively use and respond to change – the original plan was to have a system which could cope with Simon's visits to the UK by engaging helpful others to look after the chickens on shorter visits and culling/ freezing of meat to coincide with longer times away.

3. Obtain a yield – potential yields include meat, eggs, fertility, pest control.

4. Use Edge and Value the Marginal – the area behind the trees is marginal – access is limited by the canopy height but it creates a perfect shaded area for the chickens.

5. Use of renewable resources and services – it would have been interesting to find out if I could have managed the foraging system so that it was also producing its own supply of seed.

DESIGN DECISIONS

PLANTING ANALYSIS and RESULTING DECISIONS

I researched potential plant inclusions in a forage garden - both shrub layer and ground cover which could have been planted in and around the existing tree canopies to make a kind of desert forest garden. This would have created a place where the chickens were able to forage under cover, so being able to express their natural foraging behaviour whilst being offered some protection from birds of prey.

I was hoping that I might be able in the long term to plant areas bounded by thornier/denser shrubs which would help contain the chickens in specific areas but this would have taken time to establish and probably fencing would be needed when the bushes were young and vulnerable. I was planning to carry out some observations and trials of how long it would take the chickens to deplete an area and what species could cope with being used for forage by small dinosaurs.

A further intention was also to create more habitat generally for wildlife and to encourage wild birds in particular.

This is a transcription of my original notes. I didn't actually get to plant any of these before Simon and I split up so I didn't actually make the planting decisions but I have chosen some to go on the

design map to illustrate how they could have fitted together. All the plants included are desert adapted and have been grown in the Phoenix area.

Plant	Features/ Comments	Inclusion in Planting design
Mexican Elder (Sambucus mexicana)	Fast-growing. Birds like the berries.	YES
Texas Mulberry (Morus Microphylla)	Deciduous. Fleshy drupes.	YES
Desert hackberry Celtis Pallida	Evergreen. Dense growth habit. Thorns. Orange edible fruit.	YES
Chilterpine	Will grow under Hackberry or mesquite. Frost sensitive. Old version of Chilli.	Grow as an annual in ground layer
Quailbush Atriplex lentriformis	Food/medicine/birds	NO – not enough space
Greythorn (Ziziphus obtusifolia)	Too thorny?	No
Tansy Mustard brassica Descurcairia	Edible	Possibly include in ground cover
Sow thistle	Dandelion like stuff – think we already have this growing as a weed – so could be easy to establish.	May be already present
Lambsquarters Chenopodium album	Grows in contaminated land – not an issue in the garden but useful to know.	Possibly in ground cover layer
Amaranth spp.	Looks good and provides grain. Have seen this grow really well in other Phoenix gardens.	YES – grow in veg beds and harvest seed but also try and grow in foraging areas.
Desert Ironwood	Tree – canopy layer	Too big
Red Spiderling	Annual	
Portaluca	Annual	
Barberry	Shrub layer	No Prefer elderberry/hackberry
Wolfberry	Shrub layer	No – prefer elderberry/hackberry
Prickly pear	Cactus w fruit	NO – we already have Monstruoso in the back garden – this would take up a lot of space.
Saguaro	Cactus	Takes too long to establish
Hedgehog cactus	cactus	No
HoneyMesquite	Edibe pods/foliage	YES
Pomegranate	Edible fruit/ shade	YES

Available Forage Mixes

I researched and found seed mixes sold from California but which I had seen growing well in Mesa in other gardens. I trialled a patch of one on one visit to the USA with a view to us growing nutrient rich mixes which could either be sown in trays in succession to provide fresh green fodder or grown in patches around the garden (again in succession) so that the chickens could forage from these. I

had seen this method applied successfully elsewhere in the locality but in a bigger garden and with the chickens enclosed for part of the time rather than being fully free range.

I purchased a mix from Peaceful Valley – an organic supplier in California containing the following:

Intermediate ryegrass, Tetraploid perennial ryegrass, common Flax, Buckwheat, Tetraploid annual ryegrass, Ryegrain, Japanese Millet, Red clover (OMRI listed coating), Strawberry clover (OMRI listed coating), Alfalfa (OMRI listed coating), Ladino clover (OMRI listed coating), Broadleaf Trefoil (OMRI listed coating)

The patch that I sowed did really well and grew within three weeks to the point where it would have provided nutritious foraging but Simon removed it after I left to come back to UK as it contained some grass species and he believed that this would harbour mosquitoes. This was a point of conflict between us but ultimately it was his garden and his choice.

BREED ANALYSIS and STOCKING DECISIONS

Heat tolerant breeds used primarily for egg production include Leghorns and Minorcas but because we were looking for dual purpose birds the choice really came to two breeds that were easily available locally: Rhode Island Reds (weigh about 6.5. lbs at full growth and have average lay of 312 eggs first season and 223 eggs second season) and Barred Plymouth Rocks (average lay about 240 eggs per season).

Simon chose to go for Rhode Island Reds and bought five 2 week old chicks. These cost $3.50 each from Higley Feed Store.

Simon also bought a small hen house off the shelf for $250 for the chicks but he planned to build a larger house from scratch, which would be tall enough for him to stand upright in and wide enough to take a wheelbarrow to remove used bedding and compost.

NB: At the time of purchase Simon was eating 3 eggs a day as part of a high protein/low carbohydrate diet. Locally bought organic cost in the range of $4.50 (supermarket) to $6 per dozen (Farmer's Market).

The plan was to have a three year cycle of hens:

For Simon's first lot of chicks

Born April 2015

Point of Lay September 2015

Sept 2016 – end of first (most productive) season

Sept 2017 – end of 2nd (less productive but still high yield) season

Sept 2018 – cull

Simon planned to create an assembly for the humane (quick) culling of the birds and for gathering blood and waste parts of the carcass for composting. Feathers and feet would be composted and the guts fed back to the new chickens.

The question we did not fully resolve was when to introduce new birds and how to integrate them – i.e. whether to have separate foraging areas or whether to try to integrate older and younger

members. We planned to try gradual introduction of new members to the flock and hoped that by introducing slowly and having areas to keep birds separate but within sight of each other that this would reduce stress and not have too much negative effect on the established pecking order.

DESIGN OF THE SHELTER/ROOST/ CHICKEN HOUSE (S) AND RANGE AREAS

Simon intended to build his own larger chicken house once his original chicks were fully grown but most of them died before this took place. Simon placed his small chicken house under the Rosewood tree and the chickens then chose to roost in the tree rather than going into the house at night. Three of them were then killed by a predator (probably an owl) whilst roosting. There are no foxes in Arizona, so these are not a predator and no coyotes in the part of Mesa. So the design issue is to provide safe roosting space and tree cover so that the chickens were protected from birds of prey as the main predator.

During the day, the chickens would spend their time under the tree cover but they were vulnerable when roosting in the trees at night. So part of the management issue was to encourage them to roost within the chicken house rather than the trees.

As the chickens were free ranging, at least one developed the habit of hiding her eggs elsewhere in the garden. This might have been prevented if the chickens has felt more comfortable with the nest box provided.

Finally, the excessive heat in Arizona means that it really important that the chickens (even heat-adapted breeds) have access to shade and of course, plenty of water. It is possible to buy automatically re-filling dispensers for water and very large feeders so the chickens can be safely left during the day and even for a couple of days at a time. It's important that any enclosure has sufficient air flow as there can be very little wind and stifling heat, especially in the Summer and we knew of people whose chickens had suffocated or died of heat stress.

So, in my fantasy design, I would have given the chickens a large enclosed run with internal roosts and a shaded roof and a sufficiently large nest box for comfortable laying. Bedding would be pine shavings rather than straw to help reduce any mite infestations and there would be food and water constantly available within the enclosure. When inside the enclosure the chickens would be provided with trays of forage grasses sown in succession and regularly replaced, so that they could stay within the enclosed run and still have some foraging opportunities. They could also be provided with kitchen scraps and other compost to eat, dig over etc. The run would be cleaned out from time to time and the soiled shavings added to the compost heap or spread around trees as mulch.

I placed the chicken house on the East-facing Wall as it is one of the cooler and shadier areas of the garden and it would fit under the existing tree canopy.

I haven't done a construction design for the chicken enclosure but the illustrations given here show what I have been working towards.

My fantasy chicken enclosure would have combine features from these two designs (found on Pinterest). I like the open sides and clear visibility into the run of the top one but the longer, thinner design of the bottom one. The roof would have needed to be shade cloth rather than solid.

In the wider garden, there would be areas where the chickens would be allowed to range but they would not be allowed full access to the whole garden as the vegetable growing areas would be out of bounds and other areas would have deliberately sown areas of forage grasses, shrubs and ground cover but they would not be allowed to access all of these at once. They could also have a long run at the back of the tree line which would allow them to scratch for insects and grubs amongst the tree debris. This would also be shaded and would have allowed us to watch them from the kitchen window.

The map for the final layout with the seen in the A3 portfolio. Here is a photo of it.

Figure 3Design Map Arizona Chickens

Design Decisions-How Does the Design Relate to the Mind Map?

This section explains the design addresses the issues explored in the Chicken Mind Map:

Issue on Mind Map	Sub-issues	How does the Design address this?
Food	Foraged Organic Non- GMO Bulk Buy Buying group Varied Scraps Compost	A main focus of the design is adding planting areas which could be a source of foraged food. All the plants are either tress/shrubs which will drop pods or have berries or are deliberately planted areas of forage mix/ other greens/grains. At the same time increasing plant biodiversity should increase insect biodiversity thus providing further source of forging material for the chickens, who love the crickets, roaches and other bugs. Simon did join the bulk buying group and so his imported feed was organic and non-GMO. The chickens also had access to scraps as available and the compost bin is located in their free ranging area and is open and low enough for them to be able to get in and out to enjoy the delights of a compost feast.
Welfare	Humane death Company Love Varied Diet Free range Space to roost/scratch	As a vegetarian, if this design had been for me alone, I would have chosen different breeds and just had the chickens for egg production. I suspect that although this design includes a planned culling cycle, that in practice Simon may not have actually ever got round to eating his birds. He did seem to get very attached to them. This design does not include a detailed killing apparatus but Simon had attended a chicken keeping course which included witnessing such a design and he was confident that he could create the necessary equipment to provide a quick exit and maximum recovery of bodily resources. The plan was always to small flock of around 5-6 birds and introduce more over time by a staggered approach and keep his original smaller chicken house/run under the Rosewood tree as a place where new chicks could spend time prior to integration with the old flock. This would also be available as an isolation unit at other times for any sick/ overly pecked birds. The design gives the chickens free range over most of the garden apart from the fixed fence around the vegetable garden and possibly being denied access to some of the foraging beds by temporary fencing to allow them time to recover and have new successions of planting. The larger chicken house and run would provide roosts and nest box and an enclosed area to keep the chickens safer if Simon was away for a few days, whilst still having enough space to scratch/dust bath and play. Simon's two children were very excited by the chickens and the whole family gave them lots of love and attention.
Eggs	Organic Fresh Protein Self sufficiency	Simon's initial flock of Rhode Island Reds layed well (until they got eaten themselves by an owl). Simon was never entirely self-sufficient in eggs as he eats a lot of them but he always preferred his home-produced ones.

	Possible income	He did not sell his eggs but he did exchange them for chicken-sitting whilst in the UK.
Shade	Bottlebrush Orange Lemon Mulberry Mesquite Rosewood	This lists the original larger trees in the garden which provided shade for the chickens. In the mid-day heat, the chickens would dig themselves in a round the trunks of the trees where it was coolest. They would also identify which trees were being irrigated on different days and go and site under these. The tree cover also provided habitat in the dropped litter so the chickens liked scratching under these for bugs. This design would have increased the number and diversity of trees and shrubs, increasing the shade cover.
Poop	Nutrients to soil Free range delivery Compost in situ Tray in chicken house Mess	The chicken's poop would be delivered free to the garden whilst they are ranging and also added to the compost heap when the bedding was changed in the chicken house. Simon's original small chicken house had a collection tray for poop. The fencing in the design would have prevented the chickens accessing the patio area as well as the veg garden, which is the only area where poop would be unwelcome due to the mess.
Weed Control	Forage planting Chicken tractor Access to grass(less mosquitoes) Diversions from veg	Under the tree cover a number of different weeds will grow in the garden – they make use of the shade and the irrigation system. The chickens will happily eat up the weeds unless there is something more interesting to eat (Like our vegetables!) So in this design weeds would not be removed but would be left to provide additional foraging material. In this design, there are no lawned areas but grasses form part of the foraging mix. The planting of lots of shrubs and foraging areas is intended to divert the chickens attention away from the vegetable garden as the fencing around it is more of a deterrent than an absolute barrier.
Veg production	Grow in open area(less attractive to chickens) Limit access Compost Limit timeframes	The veg garden in the design is the most exposed/least tree-covered area of the garden deliberately to discourage the chickens from playing there. Compost from the veg garden can be added to the compost bin in their area or even thrown over the low fence for them to play with/pick over. The veg garden has 3 gates to allow access to the rest of the garden, following the identified **lines of desire.**
Lifespan	Dual breed Hospital/ Isolation/ Humane killing Link to egg production	I did quite a bit of research around the productivity of different breeds and their lifespan to come up with the culling regime described. I am not sure how this would have worked out in practice as this part of the design was solely for Simon's benefit. The small chicken house has been retained in the design to act as an isolation unit for sick birds as well as being at other times a way of integrating new members to the flock.

Implementation Plan

It feels really false trying to write these for a design which will never actually be implemented but the next stages in implementation would have been:

- Structural works – putting in the fencing in particular, which could be quite costly as there is little in the way of recycled fencing available (I did look for timber yards etc in the locality but there wasn't anything suitable). This would have been a balance between function and aesthetics.

- Plant the bigger trees and shrubs. This would also involve digging shallow basins around the trees and filling these with mulch to help retain water. This is very important when planning trees in the desert landscape. Some of the shrubs may require time to get established before the chickens start feeding from them, so they might require some protection in the early stages.
- Decide on irrigation (if any) required for newly planted trees/shrubs.

- Plant up the foraging areas with the quick growing mix and the groundcover area.

- Work out a system of portable fencing or cover for these.

- Building or buying the big chicken enclosure.

- Buy chickens!!

Maintenance Plan

As far as Maintenance goes, there would probably be some maintenance of the structures every year as things deteriorate rapidly in the heat, as well as plant maintenance, such as mulching round trees. It will also be necessary to see how well the fencing works in protecting the veg garden. Feeding and maintaining welfare of the chickens would also have been ongoing.

Design Evaluation

It would have taken some time and some trial and error to work out how big each area would need to be and how quickly the chickens might deplete each forge area. I am not sure how well this would have worked in practice and it might have entailed quite a bit of tweaking.

I think overall the design could have worked really well. The main issue was the inter-personal difficulties between myself and Simon, which we did not manage to resolve rather than the actual issues of the design.

A bit of Zone 00

It's been really difficult writing this up. At the time of writing I'm 24 days into a 40 day meditation which involves chanting a prayer called So Purkh. This meditation is part of my ongoing Zone 00 development / journey towards understanding what was the spiritual meaning in my life of my relationship with Simon. So Purkh is a meditation offered usually by a woman to spiritually support a man. Generally I would not undertake a practice on behalf of another person as we each have our own spiritual journey but in the case of my relationship with Simon, I feel that I need to create a

sense of closure for myself and this is not currently possible for me to do by communicating directly with him (for reasons too complicated and personal to expound here). Doing So Purkh is both my spiritual gift to him and my way of moving on and accepting responsibility for myself as a single person and the mediation is designed to be an offering not an imposition.

It's taken me a year to be able to even look at my Arizona designs without feeling emotionally overwhelmed and I honestly have no idea whether my vision would have worked in practice. I can't judge whether this is a good design but I do know that the intentions within it are good.

I'd probably apply much the same approach of trying to integrate foraging materials to having chickens anywhere, although obviously the climatic conditions and actual plant choices would be different in a different location.

Reflections - see table in external document

References

Maricopa Master Gardener's Handbook: https://cals.arizona.edu/pubs/garden/mg/intro.html