

LESSON 5. TYPE 1 ERRORS

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→ CONTEXT:

Type #1 errors are fatal property flaws you have to live with and are very hard to fix. More than anything else, what we're trying to do when buying a piece of land is to make sure we don't buy anything with type #1 errors. That's the absolute most important thing.

Instead focusing first on finding the positives in the land, we try to avoid the negative - the fundamental errors we can't come back from.

Just by eliminating properties with type #1 errors, you'll narrow your search down from an often bewildering assortment to a smaller, clearly defined number of properties and that's before you even look at any of the desirable features such as ponds, pastures, fences, or anything like that.

→ LOGISTICS:

Use the guide provided here to learn what you'll need to avoid at all costs. Revisit your site selection criteria and see if in the light of everything you learned you now want to add or remove something from the list before you start considering the various properties in the next step.

If you need help with this step, contact me on support@permacultureapprentice.com or post your question in the [Permaculture Farm Design Facebook community](#).

Estimated time: 1- 2 h

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1. Too many legal restrictions



Buying a property that has too many legal restrictions is a type #1 error.

Some of these restrictions might be due to zoning, building codes, local architectural guidelines, homeowners' associations, or to property being in a protected area with endangered animal species present, or perhaps something else you might not even be able to imagine as yet.

And this might vary from property to property, so you need to be sure to check them out as they can severely limit what you can do with the property.

The worst thing you can do is buy and then only later realize that, according to the rules and regulations, 'sorry you can't do that', or 'you have to do it this way or this way'...That's a type #1 error hole you won't be able to climb out of...

Look for properties that have as few restrictions as possible - it's going to be easier on you if you don't have to deal with legal stuff all the time. Of course, in this day and age, these will be hard to find, so just check in advance that you can do what you want to do with the land before you purchase.

2. Toxic zone



Choosing a property that's in a toxic zone is a type #1 error.

A toxic zone is land that is near or surrounded by toxic dump sites, drilling or mining operations, or conventional agriculture sprayers.

One of the reasons that we seek our own land as permaculturalists is so that we can produce healthy food and live in a healthy environment, and these external influences can destroy that dream completely and utterly.

The toxic dump sites, mining or drilling operations, and conventional agriculture sprayers, will ruin the air and water quality and consequently the health of the local ecosystem. While such toxicity can be very localized, and, depending on the environmental factors, watercourses, winds, geography, and vegetation cover, a property in a relative vicinity might not be that affected, why risk it in the first place?

More than anything you don't want to buy land surrounded by sprayers - the conventional agricultural people spray their crops with nasty chemicals.

If your property and food you want to grow gets contaminated with the chemicals they spray, then you lost the purity of your healthy lifestyle.

Buying a property that's surrounded by sprayers, or even a sprayer on just one border, might eventually lead to you wanting to move out or make adjustments to the property, for example creating buffer zones to stop the drifts.

All of this is unnecessary if you avoid sprayers in the first place, and the same goes for other things taking place in the toxic zone.

Look for properties that are in an area that's free of mining, drilling, toxic dump sites - and with no sign of sprayers. True, that's increasingly hard to find, but anything less in my mind is a fundamental type #1 error...

3) Too steep



Choosing a property that has overly steep terrain is a type #1 error.

Our aim with a permaculture farm is to produce food and set up the farm infrastructure in the most energy-efficient and resource-conserving way possible.

Steep slopes are the enemy of that goal; they will make the producing food unnecessarily harder as we won't have that much arable land, the land will be harder to cultivate with machines, and, ultimately, if the terrain is too steep it couldn't and shouldn't be cultivated at all. The water flow and the erosion potential for a steep terrain will be high.

And then the roads, the house, the water supply, infrastructure, etc. will be that much more difficult to install, while also making movement around your farm exponentially more challenging. Roads will be steep or you would need to dig into the hill to make them less steep, and to build a house you would also need to dig into the hill to achieve a flat area for the foundation. If that was the case, then you could get into all sorts of trouble as you cut into the slope and need to hold it so it doesn't move on you and turn into a landslide.

Now some steep slopes might be unavoidable, it's not a big deal if you have them.

However, if the whole property is one big steep slope then in my book it's a deal-breaker.

Look for undulating terrain with gently rolling hills, with slopes that are no steeper than 10%. Again, occasionally steeper than that is still ok, but above 10%, the management of the land should be different. For example, you shouldn't build any swales as the erosion danger is greater, and you should focus only on planting perennials - as you move closer to 20% you are getting into a zone where you should just leave the land to grow as forest.

A variety of slope steepness is good but a big steep slope is a type #1 error you should avoid...

4) Poor Solar Access



Buying a property that has poor solar access is a type #1 error.

I see this going both ways - either not having enough sun or having too much. Let me explain...

To have an energy-efficient house or passive solar greenhouse, and simply to be able to grow crops you'll need sun. This is especially true for the colder climates in winter months when it gets colder and the light is scarce.

One of the worst things you can do in a situation like that is to buy a property where most of the day you're in the shade and not getting enough sun to heat the house or providing sufficient light for your greenhouse plants - or to grow crops to that matter.

It could be a mountain blocking it - then obviously it is what it is, or it could be some kind of neighboring building, and then again it is what it is. Finally, perhaps it could be that you need to clear a whole bunch of trees; that's feasible, but could cost a bunch of money to do so. Again, not having proper access to sun is a type #1 error.

The ideal is a southern exposure if you're in the Northern Hemisphere or northern if you're in the South Hemisphere but, for some climates, the dry hot ones, southern exposure could be poor solar access, meaning you end up with really hot microclimate. In that case you would look for south-eastern or even eastern exposure so that you can avoid that burning afternoon sun...

Either way, having poor solar access is something you can't change and it will be there permanently, so it's a type #1 error you'll want to avoid...

5. Poor water access



Buying a property where you don't have access to enough water is a type #1 error.

Water is the ultimate nutrient and no plants can grow without it, and we humans can't do anything without it. Suffice to say access to water is paramount for anything we want to do on a permaculture farm.

Now when it comes to water falling from the sky, you get what you get - that's a fixed variable...

Also, many places are not utilizing a permaculture water management strategy so almost every place has the capabilities to maximize the amount of water it catches and has at its disposal.

But poor water access is more about not being able to meet your water needs, both now and especially when looking towards the future. It could be that you don't have the water rights to harvest water or that you can't drill a well... you simply failed to consider that.

Or that the existing well doesn't have enough water to sustain your market garden operation or that you don't have a sufficient watershed to fill your ponds, or that for the size of your operation you need a running creek in addition to your well.

Whatever your water needs might be, you need to ensure you can meet them, anything less is a type #1 error. You will either need to change how much you need or move to an area that can supply you with enough water.

You should look for properties that have full water rights - to be able to stop it, slow it, store it in ponds, to be able to drill a well if you need it... That's fundamental.

Then also consider having a deep well that taps into an underground aquifer with enough water that you can drink as needed. Is a huge asset, as well as a perennial creek and springs you can tap into when you need them or use for all sorts of things such as generating electricity and aquaculture.

6) Flood zone or other high energy environment



Buying a property that's on a flood zone or in any other high-energy environment such as a wildfire or landslide zone is a huge type #1 error.

It might take you years to build up your farm and everything you ever wanted, and then just one widespread fire, flood or landslide will wipe clean the years of labor you've invested in your dream. That's a risk that you should definitely be aware of.

And with climate change we can only expect more of the current extreme weather events, both in frequency and intensity. That's why it's important to consider all climate-, weather- and terrain-related risk factors.

How likely is it that the potential location is prone to being at risk in areas susceptible to forest fires, how likely is it to suffer from a mudslide coming down a hill, how likely is it to suffer from a landslide, and how likely is it to be flooded in a heavy rainfall event - these are all questions you should be asking yourself from the outset.

Most people don't think about these things at all. They don't look at more of the long-term history of an area, and just because things look fine today, doesn't mean that's actually the case all the time. These high high-energy environments are dangerous and locating yourself in any of them is a type #1 error; a very expensive and potentially deadly thing to do.

You should look for places that are safe from these threats - this is non-negotiable, it's 1 or 0.

7. Poorly located access roads



Buying a property with access roads situated in the wrong locations is a type #1 error.

Although it might seem that this is not such a big issue, it actually is. You see, you'll be using roads every day in all kinds of conditions, snow, rain, sunshine... and if they are not placed or made correctly they'll end up being one of the most expensive elements of a property.

If the road is too steep, then you can expect it will wash out during high rainfall events, so that driveway is going to have to be repaired every year. Not to mention that it's going to be hard to

use and then you need special tires, you won't be able to transport things that easily, and, in the case of an emergency or disruption, how are you going to get up that road?

That road is going to erode and need maintenance, and the same goes for the roads and driveways in valleys. The water naturally concentrates there and this erosive force keeps destroying the roads.

This leads to constant maintenance, requiring investment into continual grading and graveling after these high-energy events. Moreover, if these are in the valleys, then in the case of a severe flood they might be totally unusable so you won't be able to get in or out of your property.

Another issue is long roads that lead to the property from a public road, or long roads leading to the house. The concern here is also just the sheer maintenance you'll need to do and the attached costs. The longer the road, the harder and costlier it gets to maintain it.

Look for are properties that are not located too far from a public road, so that the roads leading to the house are not that long. Furthermore, you should look for roads that are on the ridges compared to the valley as the ridges will stay dry during the rains and there won't be much erosion.

Finally, well-built roads will shed water, harvest and move it so they can actually enhance the water-harvesting potential of a property instead of being a constant eroding liability.

8. House on the top of a hill



Buying the stereotypical pretty house on the top of a hill is, surprisingly, a type #1 error.

This might sound very controversial, as it's human to prioritize a great panoramic view and situate your house on a hilltop. However, from an energy consumption perspective this is a very costly thing indeed.

Our goal is always to conserve resources and use the natural forces to our advantage. The archetypal house on the hill plays against that, and, as we are fighting a constant battle with elements and geography, we spend energy instead of conserving it.

When you have a house on top of a hill, the first thing you're going to find is that there will have to be a long road to get there. As you learned in the previous type #1 error about physical access, this brings all sorts of expenses and troubles. The roads need to be plowed, graded, graveled, maintained, and then it might be really steep and not easily accessible - that's one aspect...

Then because it's on the top of a hill with great views and no trees or anything to protect it it's going to be exposed to winds, both hot and cold, with cold winds increasing the cost of heating

the house and hot winds increasing the cost of cooling it. Not to mention that in severe weather events you can get hammered from all sides...

Then because the house is on the highest part of the property, any water from dams, ponds, or water tanks will have to be pumped to the house area. Therefore, you lose the opportunity to use gravity instead of a water pump - which makes you dependent on electricity.

It's not a stretch to say that locating a house on top of a hill can increase energy consumption by up to 50%.

What you should instead look for is a house that's situated mid-slope. There you'll be protected from winds, you'll be able to use gravity-fed water and the roads will be easier to build and maintain. I would avoid a house in a valley as much as the one on the top of a hill, mostly because of the flooding as we discussed earlier but also because of the cold air concentrating in this area.

9. Widely dispersed homestead infrastructure



Buying a property with a widely dispersed homestead infrastructure is a type #1 error...

If the whole of the homestead infrastructure - the house, garage, greenhouse, toolshed, etc. - is overly spread out, this only leads to unnecessary mileage and lost time.

This is something you'll be paying for each and every day on your farm. Just imagine if you need something from your garage, so you walk there and it takes you two minutes, and then you need something from your toolshed and it takes you again two minutes as the garage is not close to toolshed, and then you need something from your greenhouse and...

Although these few minutes it might not seem much, cumulatively you'll lose many hours of time a year when you could've been spending that time on growing plants instead of commuting between dispersed buildings - all because they are spread out too far from each other.

What you should look for are buildings that are as close together as possible, that form building complexes, so there is a central courtyard and all buildings are positioned carefully around it. This way, all of the buildings are easily accessible from this central point and this saves you untold time and energy.

10. Degraded land



Buying degraded land or land with poor soil is a type #1 error.

If your goal is really is to restore a piece of land then obviously this can't be a type #1 error, that's your goal, nothing wrong with that, we need more people like you willing to do this.

However, if your goal is to produce something from the land then you are entering into type #1 error territory.

We can influence the quality of soil relatively easily, but it takes time, and it's hard to do both at once; the restoration and production. The restoration almost always needs to be done first, and that can easily be a decade-long project requiring an immense amount of work.

That's ok, that's wonderful, that's badly needed - but just be sure what you want to do with your farm. If you want to start producing veggies, fruits and nuts as soon as possible then working with degraded land or poor soil will only slow you down, and be a drain on your precious resources and labor.

If you want to farm, find fertile soils, look for deep and loamy soils rich with organic matter.

Of course, it's hard to find the ideal soil that fits the profile I just described, so you might settle for less but at least you need to be aware that you need to avoid the worst of it, shallow, degraded, toxic and abused soil that will cost you time and money to repair.

11. Land with easements



Buying land with easements is a type 1 error.

Easements are not necessary bad. You definitely need access to utilities such as gas, electricity, phone, sewerage, or whatever, so you need to be close to them in order to get them onto the property, but I see several big issues with having easements on your land that would qualify this as a type #1 error.

To begin with, by its very nature, an easement is a legal right for someone else to use your land for a specific limited purpose. You might be the owner of the land but that someone has the legal right to use the property.

So, if there are utilities on your land, the utility companies will most likely have some kind of easement to access or repair their equipment, whether that's phone- or light poles, or buried cables or water lines. They will have the right to come on your property and make sure their stuff is working properly.

The problem is compounded if the easement is in some way going through the middle of your property, splitting it in two, for example a public or private road easement. Maybe the neighbors are landlocked and need some way to get from the public road to their property so they're granted a private road easement that goes across your property. You can imagine how limiting that could be - you lose the privacy, access to your land and you can't build where you want as there is an easement there. I know the problem as my property has a situation just like that, a public easement splitting the property in two, causing me all sorts of trouble...

If you can avoid easements on your property, at least the big ones such as cell-phone towers, power lines, public or private roads etc., then do so. Look for properties that have utility easements close so you can easily connect but avoid having them on the property as that would count as a type #1 error.