

Community conservation

Seed libraries, networks and community seedbanks

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Abstract

Between the state genebank and the home garden lies a level that scarcely appears in the official figures and carries a considerable part of living diversity: seed libraries, exchange circles, conservation networks, community seedbanks and on-farm communities. This paper orders these organisational forms by effort and depth of conservation, describes the path of establishment in seven steps and sets out what a network actually costs — in area, working time and people. The central observation: the community level is the only one that also carries the cultivation knowledge, and at the same time the only one whose continued existence is decided anew from year to year.

1. Why this level exists

Ex situ conservation conserves genetic information at a point in time. It halts the variety in order to preserve it. That is its strength and at the same time its limit: what lies in store no longer adapts, and the knowledge of how to grow, select and propagate it does not lie in the jar with it.

The community level takes hold precisely there. It keeps the variety in motion, distributes it across many hands and passes on the procedure together with the seed. In the specialist literature it is therefore described as an intermediate form between ex situ and on-farm conservation; Bocci and co-authors treat for this purpose the three European cases ProSpecieRara (Switzerland), ARCHE NOAH (Austria) and Rete Semi Rurali (Italy) and note that a comprehensive analysis of the role of such institutions in industrialised countries has so far been lacking.

This gap is not a marginal problem. If only about 41 per cent of the world ex situ holdings are safety-duplicated and, according to reporting on the FAO report, around a quarter are awaiting regeneration, then the question of who performs the multiplication work is not a side question of conservation but its main question.

2. Five organisational forms

Organisational form	Effort	Depth of conservation	What it delivers
Seed library	low	low	reach, entry point, visibility
Exchange circle and seed festival	low	low	dissemination, exchange of knowledge

Organisational form	Effort	Depth of conservation	What it delivers
Conservation network	medium	high	distributed multiplication with responsibility per accession
Community seedbank	high	high	own store, entry check, documentation
On-farm community	medium	medium	continuous adaptation in cultivation

The seed library is the lowest-threshold point of access: seed is borrowed from a public library like a book, grown, multiplied and returned in part. In Lower Austria the province, Treffpunkt Bibliothek, Natur im Garten and ARCHE NOAH jointly operate such libraries, with the declared aim of extending them to all public libraries of the province. The conservation value in the narrower sense is limited — there is no entry check, no documentary record and no assured return flow —, the dissemination value is high.

No published total of seed libraries for Austria, Germany or Switzerland was found; only figures for individual provinces are available. According to a press release of the provincial government of 29 February 2024, Lower Austria had 80 public seed libraries; noe.ORF.at reported on 13 September 2023 a target of about 260 libraries. For Tyrol, MeinBezirk reported 38 seed libraries on 11 March 2025. The package's *Network Directory* now lists 55 organisations, including 24 newly added seed libraries and initiatives in Austria, Germany, Switzerland and South Tyrol.

The exchange circle carries knowledge and dissemination but holds no verifiable collection. It is the preliminary stage out of which networks arise.

The conservation network is the form with the best ratio of effort to depth of conservation. One body keeps the archive, multiplication lies with named growers who take responsibility per accession and deliver a return flow. The effort is distributed, responsibility remains attributable. The price for this is coordination.

The community seedbank keeps its own store with drying, cooling, entry check and documentation. It is the only community form that can actually meet the genebank standards — and the only one that needs infrastructure and permanent funding for this.

The on-farm community conserves in ongoing cultivation. The variety continues to adapt and thereby also changes; a different object arises than in the store. That is not a shortcoming but the point: in 51 countries, around 35 million hectares at reported sites in areas of high diversity were farmed with landraces and farmers' varieties (2011 to 2022).

3. The path of establishment

Seven steps, in this order. Each step has a verifiable result.

Step	Result
1. Define purpose and boundary	One sentence on the purpose and a list of what expressly does not belong to it
2. Clarify the legal framework	One page stating, for each route of supply, what it rests on
3. Regulate admission	An admission form and a rule on when a sample is admitted
4. Store and check	A storage record with the next check date per accession
5. Organise multiplication	An annual plan of who multiplies which accession and when
6. Document and safeguard	Holdings that can be reconstructed even without one's own site

Step	Result
7. Pass on knowledge	A collection that survives the turnover of people

Two steps are regularly skipped and take their revenge later.

Step 2 is skipped because it is uncomfortable. The consequence: a network builds up a collection for years and finds at the first supply that it constitutes placing on the market. The facilitations of market law presuppose continuous documentation of provenance; whoever does not keep it from the outset cannot supply it later.

Step 6 is skipped because it yields nothing visibly useful. The consequence: holdings that are known to no one outside are not rescued in the event of a failure, because no one knows that they existed.

4. What a network costs

The calculation in the *Conservation Network Planner* tool takes as a basis, per crop group, a multiplication cycle, an area requirement and a time requirement, and calculates the annual load from these. For a network with 120 accessions — 60 simple self-pollinating species, 10 cereals, 20 insect-pollinated and 10 wind-pollinated out-crossing species, 10 biennial crops and 10 wild species — with a 20 per cent reserve for failures, the result is:

Figure	Value
Multiplications per year	37
Area requirement	around 620 m ² , excluding paths and separation areas
Working time	around 580 hours, that is about 83 working days of seven hours
People in charge	7, at six multiplications per person and year

Three readings follow from this.

First: area is not the problem. 620 square metres is a large garden. What needs area is not the accessions but the isolation distances. The planner cautiously assumes around 500 metres for insect-pollinated and around 1,000 metres for wind-pollinated out-crossing species, in line with Seed Savers Exchange recommendations for many species. Practical guides such as the ARCHE NOAH guide for seed guardians give considerably smaller minimum distances for some species; the value for the species concerned is decisive. These distances can be shortened by covering, by separating flowering in time or by hand pollination; the time requirement rises considerably in doing so. This is why distribution across many sites is not only a question of division of labour but the actual technical solution to the isolation problem.

Second: working time is the problem. 83 working days in the year correspond to about a third of a full-time post, distributed across seven people thus twelve days each. That is manageable as voluntary work and at the same time exactly the order of magnitude from which coordination becomes necessary, which itself again costs working time.

Third: the minimum plant number decides the quality. Whoever multiplies too few plants conserves the variety by name and loses it by composition. For out-crossing species the lower limit lies markedly higher than for self-pollinating species, because the diversity within the population is what constitutes the variety. The ten plants for simple self-pollinating species apply to uniform line varieties; landraces and mixed stocks of self-pollinating species should be multiplied with about 60 plants (paper P14).

The figures of the planner are expressly values from experience taken from the multiplication literature. They vary by source and site and are to be checked at one's own site before any operational use. They are suited to establishing an order of magnitude, not to costing.

5. The weak point: voluntary work without succession

A considerable part of conservation in Central Europe rests on associations and individual growers. This form of organisation is cheap and at the same time the most vulnerable link in the whole chain. When a person stops, the variety in their care is without provision and without warning, and this is often noticed only when the return flow fails to arrive.

Four precautions help, and all four cost nothing but consistency:

1. **Two mutually independent carers per accession.** Not two people in the same household, not two gardens on the same slope.
2. **Survey return flow and care annually.** A list stating who delivered in the past year and who did not is the only early warning that exists at this level.
3. **Describe the handover procedure before it is needed.** Who stops, hands over to whom, with which documents.
4. **Deposit a duplicate of the most endangered accessions in a genebank.** This is the only step that connects the community level with the institutional one, and it is rarely taken.

6. Relationship to institutional conservation

The two levels do not compete. They produce different objects and have different modes of failure.

	Genebank	Community
State of the variety	halted	in motion
Cultivation knowledge	not contained	carried along
Mode of failure	failure of technology, of the site, of funding	failure of individual people
Failure noticeable	at the germination test, that is late	at the absent return flow, that is annually
Documentary record	passport data, inventory, catalogues	frequently none

The last row is the most important. The community level has its strength in keeping the variety alive, and its weakness in the fact that it is mostly not documented. Holdings without a documentary record are not rescued in an emergency. The step from the exchange circle to the documented network is therefore the most important single step at this level — and it costs no infrastructure, only order.

Figures

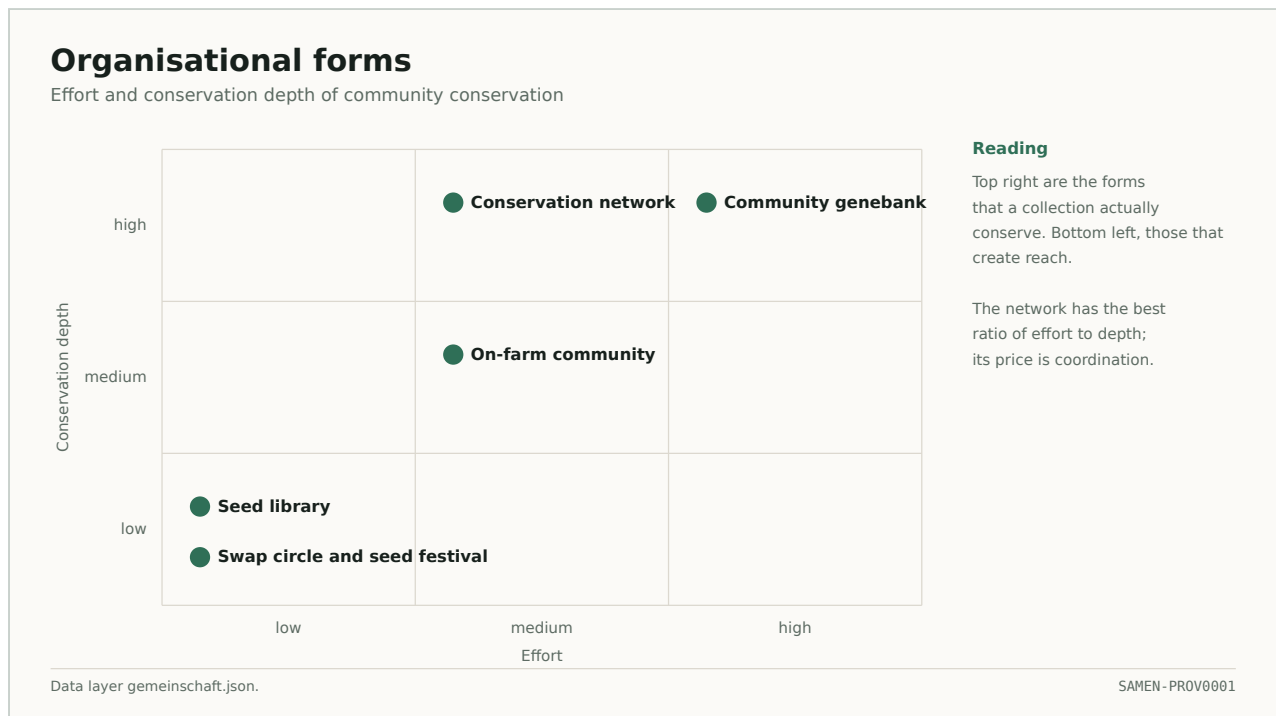


Figure 1. Organisational forms of community conservation. Source: data layer of the strand, see figure footer.

Limits of this paper

The planning values for the crop groups are values from experience, not measured quantities; they are marked accordingly in the data layer. A survey of how many seed libraries, exchange circles and networks actually exist in the German-speaking area and which holdings they keep was not carried out and would be a work step of its own; the accessible literature treats three European cases and notes the gap itself. The statements on voluntary work rest on the structure of the organisational form, not on an evaluation of return flow data.

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