Specify Software Project
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The Approach to Tissues in Specify 6

There are two distinct methods to tissue collections in Specify and each has its pros and cons and different ways of approaching the same problem. The inherent nature of tissues is that they are linked in some way to voucher specimens, either within your collection or another institution.

The types of relationships required for linking specimens is not currently available in Specify 7, but are scheduled for release in late 2017.

1. **Tissues as a separate but linked collection**

    Tissues can be handled as a completely different collection with its own numbering system. The two collections can then be linked together using the relationship function in Specify 6 which relates vouchers to a tissue or tissues (in the case of lot based collections like fish). If the two collections are placed in the same discipline (which they most likely would be) then they share various data tables – taxonomy, collecting events, localities, geography, agents etc. This means that changes made to an element in one of these records in one collection will also be made in the other collection.

    The benefits of this approach are that:
    • There is no need to create "dummy" records in the voucher collection for tissues for which you do not hold the voucher, i.e. you would never have a "voucher" record that only has a tissue preparation.
    • The two collections can have different form layouts to include fields unique to each collection (there are many fields of information captured for tissue collections that are not captured for vouchers – tissue type, amount of tissue, number of tubes, original preservation, Genbank sequence information etc.) thereby negating redundant tissue fields in the voucher collection and vice versa.
    • In the case of lot based collections, multiple tissues from the same lot can be individually numbered, identified and tied back to their voucher lot – something that is more difficult using preparations.

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The detriments of this approach are that:

- Data for both tissues and vouchers needs to be entered independently. However, once the data is entered into one collection it can be reused in the other through the query combo box interface on the forms, i.e. if a collecting event (and associated locality and geography) are entered into the voucher collection, that same collecting event and related tables can be reused in the tissue collection by simply typing in the first couple of letters of the field number into the collecting event query combo box field. Any changes made to these tables in one collection will automatically affect the other. However, any changes to individual fields on the form in one collection need to be replicated in the other by hand. There is thus the possibility that the two collections could get out of sync. This can be negated by doing comparison scripts between the two collections to look for inconsistencies.
- There is also the possibility that there will be confusion in the community of users in the two catalog numbering systems (voucher number and tissue number) and how these should be cited and used in publication. This can be negated through the use of explicit voucher loan and tissue gift policies which spell out citing and publication protocols.

Tissue collection form – KU Ichthyology

The above indicates (in green) the unique fields used in the tissue collection and (in red) the linking field to the voucher collection. This linking requires the appropriate code to be inserted into both collections

and a relationship to be set up in Specify (System/Configure Collection Relationships...). The reason for the two fields is to accommodate vouchers not in the KU collection as below

Voucher collection form – KU Ichthyology

The above (in red) indicates the corresponding form widget necessary to indicate tissues linked to vouchers

2. **Tissues as preparations within the voucher collection**

Tissues can simply be entered as preparations of their voucher record in the same collection

The benefits of this approach are that:

- All data is in one collection and tissues are intrinsically linked to vouchers within each record. Changing data in a voucher automatically changes the data in the tissue and vice versa

The detriments of this approach are that:

- It is more difficult to number tissues independently of vouchers if needed. This can be overcome by using a field in the preparation table to number tissues as preparations
- It is more difficult to track multiple tissues in a single lot. This can be overcome by listing tissues individually rather than as an amalgamated preparation i.e. instead of tissue-5 you would have tissue-1, tissue -1, tissue-1, tissue-1, tissue-1. This has the added benefit of being able to enter other unique information about the tissue in question but see below.
- Forms for vouchers and tissues need to be the same so any fields unique to tissues will appear on the voucher form and vice versa. This is particularly true for preparations. If you add additional fields to describe tissues they will also appear on voucher preps.
- If you have a tissue without a voucher (or the voucher is held elsewhere) then you have to create a "dummy" record for the tissue in the voucher collection. If you have a collection where all tissues are from vouchers held in the collection then this is less of a problem.